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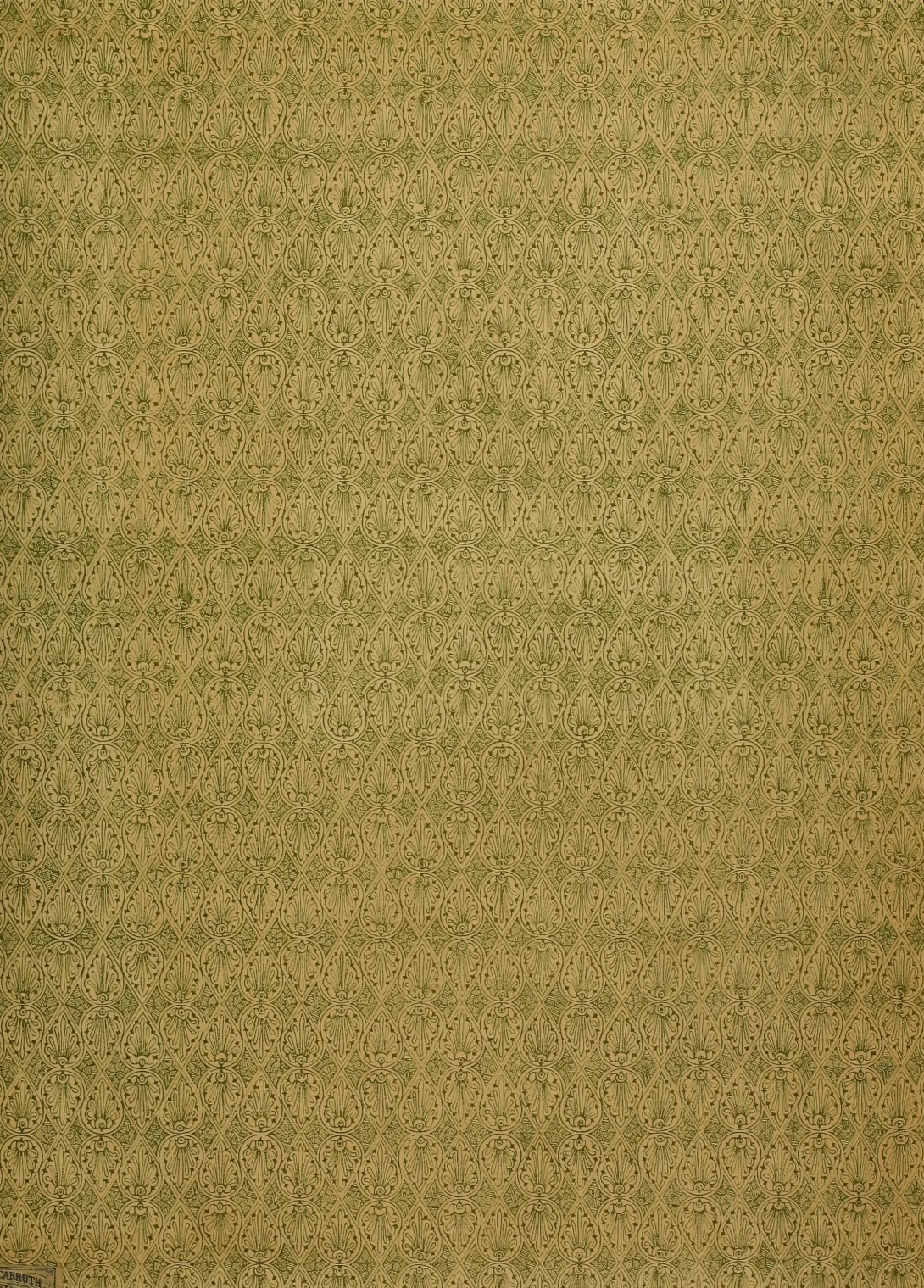
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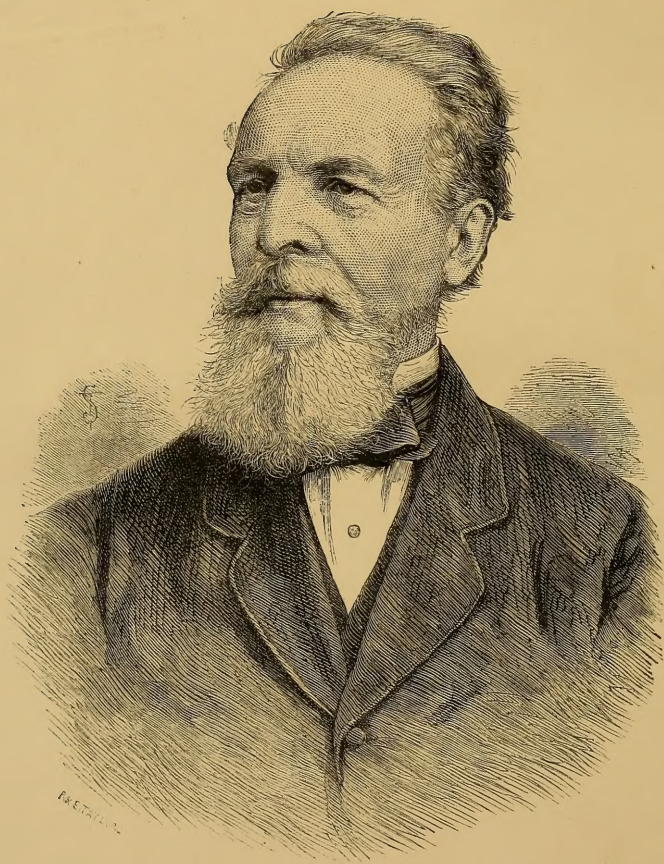
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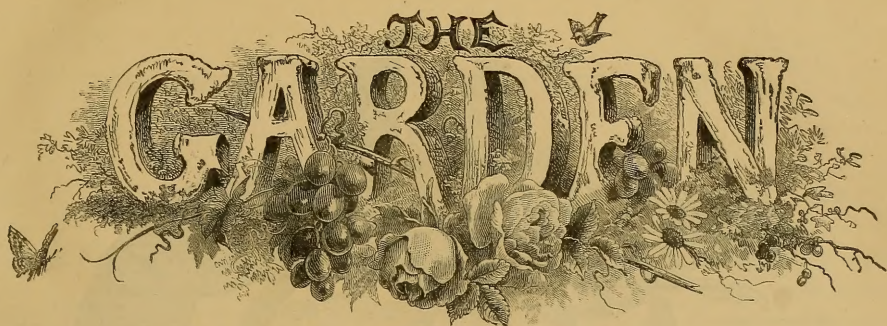
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John Doming



AN

ILLUSTRATED WEEKLY JOURNAL

OF

HORTICULTURE IN ALL ITS BRANCHES.

FOUNDED BY

W. Robinson, F.L.S., Author of "Alpine Flowers," etc.

' You see, sweet maid, we marry
A gentle scion to the wildest stock
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend nature—change it rather.
'The art itself is nature.'—*Shakespeare.*

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TO
JOHN DOMINY,
OF EXETER AND CHELSEA,
THE TWENTY-FIRST VOLUME OF "THE GARDEN"

IS DEDICATED,

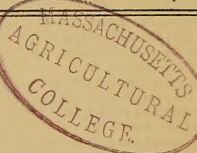
IN RECOGNITION OF HIS LONG AND USEFUL WORK IN THE IMPROVEMENT AND HYBRIDISATION OF GARDEN PLANTS,
ESPECIALLY ORCHIDS, AND HIS GENERAL EXCELLENCE AS A CULTIVATOR.

W. R., June, 1882.

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JOHN DOMINY.

MR. JOHN DOMINY was born at Gittisham, Devon, in 1816, and was early led to adopt gardening as his profession. In 1834, after his apprenticeship in a private garden, he spent two or three months in Messrs. Lucombe, Pince, & Co.'s Exeter nursery, and thence removed to Messrs. Veitch's nursery in the same town. In 1841 he accepted an appointment as head gardener to J. P. Magor, Esq., of Redruth, where he remained for nearly five years, being a most successful exhibitor at the Cornish flower shows during that time. In 1846 he finally returned to the Exeter Nurseries of Messrs. Veitch & Son, ever since which time he has been connected with the firm, first at Exeter, but more recently at the Royal Exotic Nursery, at Chelsea, from which, we regret to say, failing strength recently compelled him to retire.

It was after Mr. Dominy's return to the Exeter nursery of Messrs. Veitch, in 1846, that he commenced that series of experiments in hybridising Orchids and Nepenthes, which has in recent years made his name a household word amongst horticulturists. In 1852 Mr. John Harris, of Exeter, suggested to Mr. Dominy that the production of hybrid Orchids might not be impossible, and he at once turned the suggestion to practical account. Four years later the first hybrid Orchid appeared in the shape of *Calanthe Domini*, this being soon afterwards succeeded by *Cattleya hybrida*, and eventually by other kinds, of which the following is a complete list. Those marked with asterisks are the hybrids; the others the parents:—

<i>Calanthe Masuca</i>	<i>Cypripedium barbatum</i>	<i>Nepenthes distillatoria</i>	<i>Cattleya (Lælia) crispa</i>
* <i>Calanthe Domini</i>	* <i>Cypripedium Harrisianum</i>	* <i>Nepenthes hybrida</i>	* <i>Cattleya Sidniana</i>
<i>Calanthe furcata</i>	<i>Cypripedium villosum</i>	<i>Nepenthes</i> , spotted species from Borneo, unnamed	<i>Cattleya granulosa</i>
<i>Phajus grandifolius</i>	<i>Cattleya Aclandiae</i>	<i>Cattleya (Lælia) crispa</i>	<i>Aerides affine</i>
* <i>Phajus irroratus</i>	* <i>Cattleya quinquecolor</i>	* <i>Cattleya devoniensis</i>	* <i>Aerides hybridum</i>
<i>Calanthe vestita alba</i>	<i>Cattleya Forbesi</i>	<i>Cattleya guttata</i>	<i>Aerides Fieldingi</i>
<i>Cattleya guttata</i>	<i>Cattleya (Lælia) crispa</i>	<i>Cattleya granulosa</i>	<i>Dendrobium nobile</i>
* <i>Cattleya hybrida maculata</i>	* <i>Cattleya (Lælia) Pilcheri alba</i>	* <i>Cattleya hybrida</i>	* <i>Dendrobium Domini</i>
<i>Cattleya intermedia</i>	<i>Cattleya (Lælia) Perrini</i>	<i>Cattleya Harrisonæ</i>	<i>Dendrobium moniliforme</i>
<i>Limnates rosea</i>	<i>Cattleya (Lælia) crispa</i>	<i>Nepenthes distillatoria</i>	<i>Cattleya labiata</i>
* <i>Calanthe Veitchi</i>	* <i>Cattleya (Lælia) Pilcheri</i>	* <i>Nepenthes hybrida maculata</i>	* <i>Lælia Veitchiana</i>
<i>Calanthe vestita</i>	<i>Cattleya (Lælia) Perrini</i>	<i>Nepenthes</i> , spotted species from Borneo, unnamed	<i>Cattleya (Lælia) crispa</i>
<i>Cattleya Loddigesi</i>	<i>Cattleya maxima</i>	<i>Cattleya maxima</i>	<i>Cattleya crispa</i>
* <i>Cattleya Brabantiae</i>	* <i>Cattleya Domini alba</i>	* <i>Cattleya Dominiana</i>	* <i>Cattleya (Lælia) Felix</i>
<i>Cattleya Aclandiae</i>	<i>Cattleya amethystina</i>	<i>Cattleya amethystina</i>	* <i>Cattleya Regnelli</i>
<i>Cypripedium barbatum</i>	<i>Goodyera discolor</i>	<i>Nepenthes Rafflesiana</i>	<i>Cattleya Dowiana</i>
* <i>Cypripedium vexillarium</i>	* <i>Anactochilus Domini</i>	* <i>Nepenthes Domini</i>	* <i>Lælia Dominiana</i>
<i>Cypripedium Fairieanum</i>	<i>Anactochilus xanthophyllus</i>	<i>Nepenthes</i> , green species from Borneo, unnamed	<i>Cattleya exoniensis</i>
<i>Cypripedium Pearcei</i>	<i>Fuchsia serratifolia</i>	<i>Cattleya Mossiae</i> (Syn House vars)	<i>Cattleya Dowiana</i>
* <i>Cypripedium Domini</i>	* <i>Fuchsia Domini</i>	* <i>Cattleya exoniensis</i>	* <i>Lælia Dominiana rosea</i>
<i>Cypripedium caudatum</i>	<i>Fuchsia spectabilis</i>	<i>Lælia purpurata</i>	<i>Cattleya exoniensis</i>
<i>Cattleya Mossiae</i>	<i>Goodyera discolor</i>		
* <i>Cattleya Manglesi</i>	* <i>Goodyera Veitchi</i>		
<i>Cattleya Loddigesi</i>	<i>Anactochilus Veitchi</i>		

Of these there are two or three so beautiful and so widely known, that allusion to them here is not out of place. Even if Mr. Dominy had done nothing but raise such hybrid Orchids as *Cattleya exoniensis*, *Calanthe Veitchi*, and *Lælia Domini*, he would have deserved honour at our hands. Apart, however, from the origin of hybrid Orchids and Nepenthes, other and many duties devolved upon him especially after 1864, when he removed from Exeter to London to take the general management of the Royal Exotic Nurseries, at Chelsea, with the late Mr. James Veitch. This occasion was marked by a suitable presentation from the Exeter Horticultural Society, which had previously awarded him a silver medal in 1858 for his experiments in hybridisation.

We do not assert that Mr. Dominy was the first to obtain Orchids from seed. In 1832 *Prescottia plantaginea* was thus raised in the Horticultural Society's Chiswick garden; and so also *Paxtonia rosea* was found growing from seeds accidentally distributed, or self-sown, in Messrs. Loddiges' nursery, at Hackney; but that Mr. Dominy was absolutely the first to raise hybrid Orchids and Nepenthes is past a doubt. Mr. Dominy demonstrated the possibility of Orchids being raised from hybridised seeds long before Darwin's "Fertilisation of Orchidaceous Plants" appeared.

In speaking of Mr. Dominy's hybrid Orchids, some years ago, Professor H. G. Reichenbach said, "I would once more declare that the raising of such hybrids, whose origin is candidly and clearly stated, must by-and-by assist us very much in improving our views about species." This prophecy is now fully realised; but we must not forget that at the time when Mr. Dominy's

first hybrids appeared the world was not so catholic in its reception of "new departures" as now, and not a few discouraging remarks anent hybrid Orchids were made at the time. Now, however, it is pleasant to know that all appreciate them at their proper value.

The Council of the Royal Horticultural Society of London recently (1880) awarded their large gold Flora medal to Mr. Dominy in recognition of his services to horticulture generally, especially for his remarkable achievements in hybridisation. So also with the same object a sum of money has recently been subscribed by a few friends, and presented to him, with a gold watch, through Sir Trevor Lawrence, Bart. This much deserves to be said, as showing the esteem in which Mr. Dominy is held by all with whom he has been brought into contact. But far more important are the results of his life's work amongst plants. If it be true that "a man's best work is his best monument," then will John Dominy be long remembered, even by those who shall come after the youngest of us.

In publishing a portrait of Mr. Dominy with this Volume of *THE GARDEN*, we simply wish to show our respect for one who has worked intelligently and successfully for over 40 years in the service of our art, and who has retired from active life with substantial proofs of the friendship and good wishes of all who knew him.

B.



THE GARDEN.

VOL. XXI.



GARDEN HOME IN CALIFORNIA

THINKING that it might perhaps be a matter of some interest to readers of *THE GARDEN*, I have from personal inspection written out a list of the fruit trees growing in the open air upon a farm near Niles, in Alameda County, 80 miles south-east from San Francisco, in the Santa Clara Valley. We have the ocean breezes, somewhat modified by the San Mateo Mountains towards the west. The amount of frost in winter varies much with location in this valley. A narrow belt near the mountain's base on the east side is most sheltered, and is best for the culture of choice fruits and flowers.

We have no rain during the summer, or from May 1 to November 1—positively not a shower sufficient to lay the dust; yet we do not have to irrigate (except young or newly-set plants until established). If the ordinary winter rains are received all manner of trees perfect their fruits, and the cereals ripen, and most vegetables grow well without artificial application of water. Maize or Indian Corn is planted in the open field about May 5, and grows and perfects without ever having had a drop of rain and without irrigation. Sometimes Barley is sown for hay in December and cut in April. Then Maize is sown on the same land for a late crop, and unless the winter has been late and more than usually wet, the Corn needs some assistance. For ease and economy in working it, the vegetable garden is supplied with water from wells or ditches, and as fast as a bed is emptied the soil is dug over, fertilised, and replanted.

The soil is rich and deep, with an underlying stratum of gravel, 30 ft. down, to which wells are bored, and yield an unfailing supply. Nearer the bay of San Francisco artesian wells abound, but on the farm of which we write the water is raised to the surface by windmills and steam pumps. The climate is delightful, healthy, and invigorating.

The farm under consideration has been occupied about thirty years, but horticultural work

was begun here only eight years ago, and the wonderful growth manifested is due to soil and climate. Of trees now in bearing there are 40 varieties of Apples, the earliest ripening the middle of June; 4 of Crab Apples; 23 of Pears, the earliest ripening in June; 21 of Plums and Prunes; 2 of Quinces; 40 of Peaches, extending in season from June 1 to November 1; 3 of Nectarines; 7 of Apricots; 18 of Cherries; and 8 of Figs. Besides these there are already fruiting Japan Persimmons, American Persimmons, English Walnuts, Persian Walnuts (Kaghazi), Almonds, American black Walnuts, Italian Chestnuts, English Filberts, three kinds; Oranges, of six varieties; Lemons, of three sorts; Citrons, Shaddocks, Olives, the Loquat of Japan, the Kumquat, or Japanese dwarf Orange; and Grapes, both American and European; Blackberries, Currants, Raspberries, and Strawberries; all the leading varieties are grown. The large English Gooseberries mildew occasionally, owing to the hot sun, but the Houghton Seedling thrives satisfactorily. *Passiflora edulis* fruits in the open air, and stands the winter. The Pomegranate is a great favourite, both for bloom and fruit. Besides these and others, many useful plants have not yet fruited, but are growing rapidly. Among these are the three-lobed *Asimina* (*A. triloba*), the Juglans *preparuriensis*, *J. cinerea*, the *Carya microcarpa*, the Japanese Chestnuts, the *Carya olivæformis*, the *Macadamia ternifolia*, the *Fagus ferruginea*, the Carob, the Jujube Plum, the Date Palm, the Cork Oak, and Bananas of all sorts. These last are cut back by the frosts, so that it is improbable that they will ever fruit in the open air, but they grow luxuriantly from the old stems each spring, and add much to the beauty of the scene.

The list of ornamental plants grown here is very large. *Kennedya*s attain the size of tall shrubs or small trees; *Fuchsias*, *Pelargoniums*, and similar plants bloom most of the year. The small ranges of greenhouses, hotbeds, and cold frames are used chiefly for propagation. *Camellias*, *Rhododendrons*, *Azaleas*, &c., are kept under a lath-house shelter through the summer months. But since the chief object of this list is to show how wide our range of fruit is, it seems out of place to consider the ornamental department at present.

This year fruit has been sold from this farm to the canneries at San Jose at rather surprising prices when the heavy yield of these valley lands is considered. The price for Peaches ranged from 30 dols. to 80 dols. per ton, according to quality and time of ripening; Plums at from 40 dols. to 60 dols per ton; Apricots at 70 dols. per ton. Some farmers last year (1880) sold their Apricots at 100 dols. per ton, and had from four

to six tons per acre. One gentleman at Haywards, in the Santa Clara Valley, had nearly ten tons per acre; but these were exceptional prices. At the rate this year 70 dols. per ton a large profit is insured; in fact, if the present prices continue, or anything like them, for four or five years, the fruit growers will become wealthy. Salway Peaches, which sold this year in the orchard at 80 dols. per ton, yielded at the rate of 1200 dols. per acre. 1200 dols. or nearly £240 as the return of one acre of land makes the faith of Californians in the fruit-growing capacities of the coast greater than ever, and has already caused the price of available fruit-lands to advance rapidly.

CHARLES H. SHINN.

San Francisco.

SOIL FOR ALPINE PLANTS.

I CANNOT resist the temptation of forwarding to you some extracts from a letter which I have received from Mr. W. Oxenden Hammond, of St. Alban's Court, near Wingham, Kent. As you of course know Mr. Hammond has been a cultivator of alpine plants for some years, he has one of the largest and finest rockeries in the kingdom, and he is in the habit of constantly replenishing it by visits with his gardener to the Alps and the Pyrenees. I know of no place where many alpine plants flourish as they do with him. The Edelweiss is completely at home on his rockery, and seeds most luxuriantly. It shows the greatest indifference to soil, and can no longer be accounted (as I thought it must be) an exception to the general rule. *Ramondia pyrenaica*, it is no exaggeration to say, is more happy with Mr. Hammond than it is in its native habitats, a diameter of 11 in. not being an unusual thing for it to have with him, and I have seen many specimens of *Saxifraga longifolia* at Wingham such as I have met with nowhere else. A good deal more might be said about this splendid rockery, but the following are extracts from a letter which he has sent to me, and which I am permitted to forward to you:—

"My own belief is that the constituents of soil are a very secondary consideration to the successful growth of alpine plants. I entirely disbelieve in the scheduled disabilities of certain plants in relation to soil that I have seen published in *THE GARDEN*. There may be a few plants that refuse to thrive in certain soils, but I believe them to be quite the exception. I believe situation and atmospheric conditions, together with aspect and exposure, to govern all others, and if these are adverse many alpine plants will not live for any time. As to the Edelweiss, it grows and propagates itself equally freely both among the limestone grit of my rockery and in the natural

loam of my borders. I believe it will grow anywhere. In so far as I have tried plants in borders I have found them, without exception almost, to do better than on my rocks, and I believe solely because they are better nourished. The *Ramondias* are all grown on the face of the sandrocks planted in crevices, with a north aspect, where I can give them absolutely no sun. I have never seen any nearly so fine as mine are, certainly not in their native habitats."

In a second letter Mr. Hammond writes: "Curiously enough after I had posted my letter to you I took up *THE GARDEN* in the evening and saw a letter from M. Gusmus speaking so very decidedly as to the results of certain experiments as almost to lead me to think the soil advocates must be right. I am unfortunately not geologist enough to recognise the rock formations at sight, but any collector who knows them might at once upon the soil-selection theory by observing whether any of the so-called haters of calcareous rocks are ever found on them. To take one plant instanced by M. Gusmus as a hater of limestone, *Androsace carnea*, I have tried to grow this from plants dug by myself on the *Porte de Venesque*, the *Col de Cesy* (Pyrenees), and the *Col di Tenda* (Italian Alps), and also from bought plants. Imported and bought plants alike fail. On the other hand, the *Mt. Dore* form (Auvergne) imported by me flourished splendidly for four or five years until they went off suddenly, and I found that the roots had been eaten, I presume, by wireworm, which often bothers me. Now if the rocks of *Venesque*, *Cesy*, and *Tenda* are all igneous, that might give some colour to the notion that the limestone on my rockery was the cause of my failure. The *Puy de Sansy*, however, is in the centre of a group of volcanic mountains, and though it may be an exception to its surroundings the probable inference would be that it is igneous, and if so how is it that *Androsace carnea* taken from its summit flourishes in my limestone grit? I should much like to know what the geological character of the rocks of *Venesque*, *Cesy*, *Tenda*, and *Mt. Dore* respectively."

It seems quite clear from the above extracts what Mr. Hammond's opinion is. For one thing, *Androsace carnea* does not seem to be amenable to a hard and fast line. H. E.

THE GIANT ARUM OF SUMATRA. (*CONOPHALLUS SITANUM*.)

ABOUT three years ago the horticultural world was astonished by the discovery of a plant almost as gigantic in its proportions as the wonderful *Rafflesia Arnoldi*, and considerable interest was attached to this discovery from its being found growing almost side by side with the *Rafflesia*. Dr. Beccari has done much to increase our knowledge of the wonders of the floras of Java and Sumatra, and it is to him we are indebted for the discovery and introduction of this giant Aroid. In the museum at Kew there has been for some years the nearest approach possible to a living specimen of the parasitic *Rafflesia*, namely, a beautifully executed model of the plant, or rather flower, as seen growing in Sumatra; and now in Museum No. 3, which already contained many singular examples of vegetable life, as well as the finest collection of specimens of wood in the world, is to be seen a well executed picture of this giant Arum. This picture is about 17 ft. wide and over 20 ft. high, and contains a coloured representation of the stem, leaf, flower, and tuber of the *Conophallus*, all natural size. Imagine a plant resembling in habit, &c., the well known *Amorphophallus Rivieri*, but with a leaf-stalk 12 ft. high and 1 ft. in diameter at the base! This stem is perfectly smooth and

shining, the ground colour being green, thickly covered with large grey blotches. On the top of this stalk is the compound leaf-blade, with a spread of about 45 ft. in circumference. The tuber is over 1 ft. in diameter, and from this rises the flower. This latter precedes the leaf, and is in shape similar to that of most of the flowers belonging to that section of the Aroid family, of which the *Amorphophallus* and *Sauromatums* are well known examples, or to take a more familiar plant, the flower of *Calla ethiopica* or *Aroid Lily*. The part of the flower known as the spathe is about $3\frac{1}{2}$ ft. deep, and 3 ft. across at the mouth, while the club-shaped spadix is at least 6 ft. long and as thick as a man's thigh. The colour of the spathe is green and dark purple, while the spadix is of a yellowish hue. The tuber and inflorescence are said to be a load for two men. Such a giant as this can of course only be accommodated in such places as the Palm house at Kew, where we hope some day soon to see living plants.

VISITOR.

ORCHIDS.

CYPRIPEDIUMS.

THE following may perhaps throw some light on "F. W. B.'s" remarks on Lady's Slippers in our issue of Dec. 31. Not having much space to devote to Orchids, I have turned my attention chiefly to one genus, *Cypripediums*, and always make a point of gathering as much information about them as I can. About a year ago I purchased a plant of *Cypripedium insigne punctatum violaceum*, and intended adding *Maulei* to my collection. A flower was sent me to see from a London nursery, but not having flowered *punctatum violaceum*, I decided before purchasing to go and see it at the place where it was purchased during my then impending visit to town. I did so, and found exactly similar flowers to what had been previously sent from another place as *Maulei*. Side by side with *punctatum violaceum* stood a plant of the true *Maulei*, that is a plant that had been purchased from Lady Dorothy Neville, who had it from *Maule* direct. This, though superior to the ordinary *insigne*, is much inferior to the plant named *punctatum violaceum*. During the same visit to town, when at another nursery in search of *Cypripediums*, the proprietor greatly lauded his variety *Cypripedium Chantini*, and of course I asked to see it. The plant certainly deserved all that was said of it, but it was my old friend *punctatum violaceum*. I think that I may justly draw the following conclusions from my enquiries: 1, *punctatum violaceum*, *Chantini*, and *Maulei* (in the best variety) are the same; 2, that *Maulei*, as originally sent out, is not the very best; 3, that there is a general tendency to call all varieties of *insigne* "*Maulei*" if they have more white than usual in the standard; 4, that *punctatum violaceum* has the priority in name of the three plants shown to me. R. M.

AIRING ORCHID HOUSES.

WITH reference to the discussion respecting the admission of air by the door into Orchid houses and the maintenance of an equable temperature, I wish to say that I am not an authority on Orchid growing; but as regards the admission of air by the door, when the late Mr. W. Payne was gardener at Belmont, Taunton, it was his custom on all favourable occasions to admit air in that way, the door being kept open little or much, as occasion required, by the aid of an iron weight. The last time I called there I also saw that the present gardener (Mr. Lucas) adopted the same plan for the Orchid house, and the collection of plants is a valuable one, and is maintained in good condition. Of course there is suitable provision for giving air at the sides and top of the house in the usual way. I do not wish to enter into the dis-

cussion whether the practice of admitting air by the door is good or bad, nor am I recording my own opinion, but only the practice of one who thoroughly understood what he was about, as the condition of the plants testified then as well as now. Respecting the maintenance of an agreeable temperature in those houses where the plants require the most heat, I only know when Mr. R. Shore was gardener at Henbury Hill, Westbury-on-Trym, it was his practice to keep his houses at a temperature in which any one could admire their contents with the greatest comfort. The last time I saw them was on a bright afternoon of a September day, and I can say that I never enjoyed looking over a collection of Orchids so much, for although the house was comfortably warm the air was in active circulation and not heavily charged with moisture; in fact, there was a feeling of lightness in the air that tempted one to linger longer than is usual in such structures. Although the collection of Orchids at that time at Henbury Hill was not an extensive one, its condition told that it was well managed. From these facts I can quite understand that it is possible to grow the majority of heat-loving Orchids in a temperature in which any one may read or smoke without any unpleasant consequences. J. C. C.

CŒLOGYNE BARBATA.

"OBSERVER" (p. 622) seems anxious to prove that I am wrong and that he is right as to the qualities of what he calls "this beautiful Orchid." *C. barbata* has been grown here for about three years, so we have at least had a good opportunity of observing it. I saw it in flower at Mr. Rockett's, and the gardener there thinks the same of it as I do; therefore "Observer" will see that at least there is room for a difference of opinion. If he is a member of the floral committee he will also know that very few indeed of the members think it worth a certificate, and that those who know the plant and have given it voted against it. It has been quite long enough under trial, and is not what can be called new. It was sold in great quantities more than two years ago. I may also say for your correspondent's information, that my remarks about it were written and sent to the printer the week before the committee meeting at which the plant was exhibited was held. "Observer" has also introduced what he calls a "botanically interesting Japanese plant," viz., *Chionographis japonica*. It is a very interesting and pretty herbaceous plant, and as a hardy plant well worth growing; I am unaware of saying any more in its favour. Is that "belauding" it? I may add that the floral committee thought it worth "the highest award," and gave it a first-class certificate on the 11th of May last. Surely, although I am a member of the floral committee, that does not prevent me from expressing my private opinion about any plant, even if it has passed through their hands and been approved. It would be very desirable that the number of members voting for and against any plant should be published; then the awards made could be readily estimated at their true worth. If your correspondent knows how many members of the committee voted for *C. barbata*, he must know that it tells more against him than for him. J. DOUGLAS.

SHORT NOTES—ORCHIDS.

Barkeria Lindleyana.—These charming Orchids are quite a speciality in Messrs. Backhouse's nursery at York, where they are grown to perfection, notwithstanding they have the reputation of being somewhat difficult to manage. Among them the most beautiful just now is *B. Lindleyana*, than which it would be difficult to imagine a more exquisite Orchid, the colours combining the rare qualities of elegance, grace, and beauty. Some of the slender flower-stems in this nursery are terminated by as many as a dozen or even more flowers of a rich deep violet-purple, the lips being surmounted by a golden

crest. It is a matter of regret that such beautiful plants as these are not more generally grown, for if they were we should perhaps soon know their requirements better than we do now.—W. G.

Lælia furfuracea.—We have lately seen flowers of this rare Orchid from the York Nurseries. It is a near neighbour of *L. autumnalis*, but altogether dwarfer in growth, only attaining 9 in. or 1 ft. high. The flower is as large as that of the typical *L. autumnalis*, the sepals narrow and pointed, the petals broad, and the tips reflexed; both of a rich, deep, rose crimson. The lip is half rose colour, and half an intense rose crimson. The bulbs are somewhat similar to *L. majalis*. It is a Mexican plant, and, like *L. autumnalis* and *albida*, succeeds in an intermediate temperature.—W. G.

Fine variety of Ansellia africana.—The ordinary form of this West African Orchid is beautiful enough, but a fine form that has lately come into cultivation is its superior in many respects, the flowers being larger, the markings of the flower richer and more pronounced, and the growth somewhat stouter, and it flowers at a different period. Such a variety has just flowered in Messrs. Backhouse's nursery at York, and, judging from memory, we should say it is identical with that named in Kew a year or two ago *A. africana nilotica*.—W. G.

Cattleya Dodgsoni.—This Orchid, which has recently flowered in the York Nursery, is one of the loveliest of the genus. The blossoms are in the way of *C. Trianae*, the flowers being large, the sepals and petals pure white, the large lip bright yellow in the throat, the other part being a rich amethyst-purple. It is yet one of the rarest of Cattleyas, and we hope that it may some day become commoner. Another beautiful Cattleya that now adorns the Orchid houses in Messrs. Backhouse's nursery is *C. maxima*, a beautiful variety, some of which carry as many as eight flowers on a spike.

Odontoglossum pulchellum.—Though not so showy as some of its associates belonging to the cool house, this Orchid is one that should be a favourite. It is remarkably free flowering; so much so indeed, that when grown in a pan or large pot it veritably bristles with flower-spikes, and even if the individual blossoms are but small compared with those of some of the others, from their numbers they make a good show.—H. P.

New variety of Lælia anceps.—One of the loveliest and most distinct forms of this autumn Orchid has just flowered in the York Nurseries. It is one of the light varieties, but distinct from any. It has the sepals and petals pure white; the throat is yellow, the other portion of the lip a beautiful bluish purple. Such a remarkable variety as this is deservedly worth perpetuating, and distinguished by a distinct varietal name.—W. G.

Odontoglossum Roezli.—I get on fairly well with many *Odontoglossums*, but I cannot manage this one. I have several plants of it, some in one house and some in another, but none that look well in winter. *Odontoglossum Rossi majus* is a gem in winter for the most commonplace grower, as it is so easy to manage. For any hint as to *C. Roezli* I shall feel grateful.—A MANCHESTER GARDENER.

Autumnal flower shows.—It is a fact worth the attention of those who may desire to make autumn exhibitions attractive that richer colour has this year been produced on the show tables by means of collections of Apples than by boxes of cut *Chrysanthemums*. It must be admitted that at this time of the year colour, come from whence it will, is always valuable. At one show which I attended the great attraction was a group of well-grown Poinsettias, the large brilliantly coloured bracts of which were not only fine, but many. Specially effective were these in groups of miscellaneous plants, and those who have little else than Ferns and foliage plants to group will do well to grow a score of Poinsettias and

employ them to light up the otherwise lack-lustre leafage. I was also particularly struck with the fact that at the show where these Poinsettias were seen not a sprig of the winter-blooming *Bouvardia* was to be found, whilst on the other hand at shows where *Bouvardias* were plentiful not a Poinsettia bract was to be seen. Both of these would make good winter show plants. Then tree *Carnations*, although not good as specimens, would look very pleasing indeed if a dozen in good flower were standing up out of a group of plants, and it is certain that to those who understand them they are just as easily grown as zonal *Pelargoniums*. Some of these latter from early summer struck cuttings, kept pinched and blooming superbly in 4½-in. pots. I noted at one show as exceedingly beautiful, and as much might be said of some large plants that had been cut back on purpose to get them to flower late. Other good classes might be made of hardy berried plants, *Hollies*, *Pernettyas*, *Acubas*, &c., for instance, and variegated Conifers in 9-in. pots would make another that deserves consideration.—A. D.

TREES AND SHRUBS.

HARDINESS OF LAURELS.

It seems to be established by the experience of recent writers beyond a doubt that amongst Laurels the common Laurel is the least hardy—whether from natural tenderness or from depletion of constitutional vigour is not apparent, and it is also an established fact that the *Coleoid* Laurel is the hardest. I have seen the latter in many places green and flourishing all through the terrible frosts we have had, even where the common one was killed to the ground. With regard to the other sorts, my experience is that *caucasica* ranks next in degree of hardiness, *rotundifolia* next, *latifolia* next, and the variety *camelliæfolia* (the foliage of which, however, in no sense resembles that of the *Camellia*—*voluta* would have been a better name—being only a form of the common sort) is equally tender. There seems, however, to be different experiences in regard to these various kinds. A large grower told me the other day that *rotundifolia* with him was harder than *caucasica*, growing side by side. This is just the opposite of what I noticed, and my main object in writing is to induce others to record their testimony upon the subject, for although Laurel planting has in many places been grievously overdone, still it is a shrub we cannot do without, and it will be desirable to have a concurrence of opinion as to which is the most to be depended on during any future arctic winters through which they may be called upon to pass. I may mention in passing (and it is only another evidence of the greater hardiness of variegated over green plants), that we have here both a golden and a silver variegated form of the common Laurel, and both came through the last severe winter with scarcely any injury, although in every case the green ones were killed to the ground. T. SMITH.

Verry.

SHORT NOTES—TREES & SHRUBS.

Acer dasycarpum.—As the sender of the leaves alluded to (p. 420), and which were described as from a tree of the Silver Maple, it is only right to say, in answer to Mr. Hovey (p. 534), that I did not send the name under which the tree is known here, which is *A. dasycarpum*. Mr. Hovey correctly describes the prevailing colours of its leaves in America as most brilliant. From their conspicuousness here in Somerset, I can quite understand what a beautiful object it must be in the autumn in its native country. As an autumn ornament to our pleasure grounds, this Maple can hardly be surpassed; it is a good grower, and equally well adapted for the park as for the pleasure grounds. Our tree is probably 50 ft. high, and no severe weather affects it.—J. C. CLARKE.

Plants under trees.—I would advise “J. M.” to try Periwinkles (*Vinca major* and *minor*) beneath his Yew trees, as after several unsuccessful attempts with different shrubs, partial success has at last been obtained by the use of these plants in my own case. In order to give the Periwinkles a fair start, the soil around the Yews, which is generally a perfect mass of fibrous roots, should be replaced with fresh loam, and the Periwinkles planted in tufts about 1 ft. apart. They should receive a good soaking with water after being planted, and be duly attended with the same until thoroughly established. I have also seen Ivy luxuriate beneath Yews.—A. D. W.

Fungus on Elms.—R. McI.—The swarm of little vermilion growths, each about the size of a pin's head, and cut by you from an Elm, belong to a common fungus named *Nectria cinnabarina*. It does not kill young Elm trees or any other trees. It is extremely common on all sorts of trees and bushes in winter and spring, and generally grows upon the bark that is dead or that has been seriously injured. If you can prevent your trees from getting out of condition, you will not be troubled with this fungus.—F.

The Bitton catalogue of trees.—As some of your readers may have had their interest excited by the list of hardy trees and shrubs grown at Bitton 50 years ago, I would mention that nearly the whole with many more may be found in Loddiges' “Botanical Cabinet,” Vol. 8, published in 1823. The varieties are more numerous, as Loddiges has over 1200 varieties of Roses alone.—J. R. DROOP.

Yellow-berried Hollies.—These are not so scarce as some think they are. I went for a walk the other day, when my attention was directed quite accidentally to a Holly, the top of which was full of yellow berries. It was about 14 ft. high, but as it was close to a path, some of the lower branches had been cut away.—E. R., Tamerton, Plymouth.

Ribes palmatum (p. 620).—This is a variety of *R. aureum*, from which it differs in the leaves being more deeply cut. I cannot, however, detect any difference between it and the variety known as *R. aureum flavum*. These yellow-flowered Currants certainly deserve more attention than they generally receive.—ALPHA.

THE FLOWER GARDEN.

CULTURE OF THE GLADIOLUS.

In a recent issue of THE GARDEN there is an interesting article on this subject from Mr. Douglas, evidently from the point of view of a large and select grower, and on the whole, I think, not tending to encourage those who may not have already tried its cultivation, nor likely to stimulate those who have. Perhaps a few observations from one who does not find the Gladiolus to “degenerate,” except to a very fractional extent, but who dearly likes the flower, and would like to see its culture extended, and who adopts a somewhat different system of treatment from that referred to, may be acceptable. I must, however, not be understood as in any sense pitting my views against those of Mr. Douglas, and as my collection, I regret to say, is limited to a couple of hundred bulbs, possibly my experience is comparatively in the same ratio. But this is how I manage their culture, and I am proud to say they increase from year to year. I grow them in alternate lines in the back of two long borders in which there are fifty other different hardy flowers. No general trenching can be resorted to conveniently, nor is there any occasion, as the soil is good loam, 3 ft. deep, and pretty constantly top-dressed with old hot-bed manure and leaf-mould. I never go to disturb this border that mischief is not done to Anemones or bulbs of various kinds, so that instead of trenching I make a large deep hole and fill up with a previously prepared mixture of the foregoing until the proper depth is reached; on the top of the manure I put 2 in. of clay, then a fistful of clean river or other sand. Fix your bulb into the sand and cover with the same, having a few inches of soil over all. From the very beginning the roots have an adequate supply of silica which I

believe, gives the firm, flagger-like stamina to the foliage and without which any amount of organic feeding is almost certain to result in failure. Need I remark, too, how clean the bulbs come out of this soil in the autumn, and this brings me to say a word on the after treatment, which I find, too, somewhat different. My experience is altogether against leaving *Gladioli* on which you set any value out in beds or borders during the winter. If I had the means I should never think of paying Messrs. Kelway 50s. for a bulb of Samuel Jennings, nor upwards of a guinea for Bruce Findlay or some others, and chance them in a border for the winter. I believe the same applies to *Gladioli*, like mine, possibly not worth as many pence. I plant as early as I safely may, according to relative hardness, after February and allow thorough ripening. Then lift, leaving bulb, flower-stalk, and foliage adhering. I store in a dry loft, and surround the bulbs with moist sand. The ripening off is then gradually, slowly, and surely completed, and this is how I have my small stock at present. Throwing them out of the way, any place, where they become too dried or shrivelled, or, on the other hand, where they can absorb moisture, become mouldy, or prematurely start into growth, are all equally fatal to success. If there is any essential element that conduces to success, I think it is perfect maturation of the foliage, which means maturation of the bulb and consequent satisfactory flowering the following season. I have no experience worth noting of French seedlings, and if they are as worthless as Mr. Douglas found them the second year the natural inference seems to be that English-raised seedlings should get the preference. Very many saw the 200 prize collection of Messrs. Kelway, Langport (said to be almost exclusively their own seedlings) at the Manchester International Exhibition, and I heard experts say there, "France never produced anything finer." I find the older varieties, of which Meyerbeer may be taken as an illustration among the scarlets, and Shakespeare among the whites, always satisfactory. Cleopatra and Marguerite did fairly well this year, while Claribel was never better, having the unusual number of three spikes from one stem, and with an average of twenty blooms. Distinction and Meyerbeer were taller, but the flowers were not so good. I was fortunate to hybridise Claribel from Meyerbeer, and as I removed all the pods but two the seed seems good, and one requires patience before they can realise the result.

W. J. M.

Clonmel.

CHRYSANTHEMUMS AS ANNUALS.

ONE of the attractions of the future as regards Chrysanthemum culture, as in the culture of other popular garden flowers, will be the raising of varieties from seed. What lovely things must be yearly thrown away by those who are always striving after some unattainable model, or after a model which when attained gives us globular, lumpy flowers that no lady would wear or artist paint if they could get one of the old fringed or tasselled flowers of fifty years ago! The great difficulty seems to be the getting of good seeds. Given these, any one can raise and bloom the plants the first season; and this brings us to the point that if Chrysanthemums were grown more generally as annuals we should gain immensely in variety and beauty compared with the present plan of nearly everyone of growing the same varieties. As to the incured blooms, by all means let those grow them who care for them, but many besides myself long for some of the lovely semidouble, single, and picturesque bits of fringe and tassell, of gorgeous glints of colour which (as was long the case with Dahlias) are thrown away by the raisers of model show varieties every year. Now, as to ripening seeds of Chrysanthemums, cannot this be done in a warm, dry, sunny greenhouse in this country as well as in Guernsey or in Algeria? Will someone kindly give us a hint as to what varieties are good seed producers? I mean of the Anemone-flowered and Japanese classes more particularly. If once we can ripen

our own seed of these kinds or obtain it from abroad, there seems to me no good reason why single and semi-double Chrysanthemums should not be as lovely and become as popular as single Pyrethrum, single Dahlias, and that rare beauty amongst annuals, a single China Aster, one of which I saw last autumn of a rich crimson-purple, beside which *Senecio pulcher* looked like the veriest weed.

ANONYMA.

EARLY SNOWDROPS.

JUST at this time—Christmas Day, 1881—we have what I never saw before, even in the genial climate of Dublin, viz., Snowdrops in blossom. The kinds are *Galanthus Elwesi* and *G. Imperati* and a rare little species (see fig.) which I take to be *G. nivalis* var. *Shaylocki*, which is, I believe, the smallest and most inconspicuous of all Snowdrops, judging by its growth and appearance here. It is distinguished by having what appears to be two spathes or flower sheaths instead of one at the top of the scape. The way in which the flower bud of the common Snowdrop is enwrapped in this sheath or scape is highly interesting. It is like a shield, indeed serves the purpose of a calyx as present in exogenous flowers. The bud in its early stages is erect and nearly completely enshrouded in this sheath. The up-growing flower seems to value this sheath, and to use it just as a man about to dive into a pond employs his hands to shelter his head from contact with the water: in like manner it is to shelter the tender flower head or bud from injury when driven up against the hard cold earth that the Snowdrop utilises its flower-sheath. A glance at the right hand bud in the sketch annexed will show this very plainly.



When the bud and its clasping and protecting sheath, however, is fairly above the ground the bud struggles to get rid of what appears to be of no further use to it, and in the ordinary way forces its way out of the sheath from the open slit in front. In the case of *G. plicatilis*, *G. nivalis*, *G. Elwesi*, *G. Redoutei*, and *G. Imperati* this way is the rule, but in *G. nivalis* var. *Shaylocki* we have an exception, the spathe in this case being split in half, as shown in the left hand side of the sketch, and thus giving the flower the semblance of having been subtended by two spathes or leaves at the top of the scape instead of by one, as is usually the case. Our sketch was made just as our little clump (two bulbs) of *G. Shaylocki* appeared above the ground, and this brings us to another point to which allusion may be made. It is well known that many flowers of endogenous plants open out at first very small, some Orchids, for example, just as does the imago of a chrysalis, but a process of growth, or rather of expansion of cellular tissue takes place after the first opening of the blossom. This is especially so in the case of Snowdrops, which, in cold frosty weather especially, are often some weeks in reaching their usual or normal size after expansion. Daffodils and Anemones also represent this gradual kind of blossom growth, and amongst exogenous plants we have no better example than that afforded by *Rhododendron Dalhousiae* or *R. Nuttallii* which open small and green, but eventually develop their large pure white or soft yellow Lily-like blossoms after some days of growth and expansion.

F. W. B.

SHORT NOTES—FLOWER GARDEN.

Hardy Primroses.—I have just been planting out strong plants of coloured hardy Primroses from seed saved last June and sown the first week in July. I am not sure that though the seed was then new, it germinated more rapidly than if saved and sown in the spring; but the spring is always an extra busy time, and the raising, pricking out, and planting out a large number of anything is work well saved if it can be done at some slack time. I sowed the seed in shallow 12-in. pans, and from four of them have taken 1000 seedlings, so that it is evident the seed must have come up freely. The soil was good, light, and sandy; the pans were put into a frame, and kept shaded till the seedlings were well up. When strong enough, I pricked them out thickly into a large frame in good soil, kept them shaded for a time and always well watered, and the result is now being reaped in strong plants, three-fourths of which at least will bloom next spring. In connection with these plants I learnt the importance of doing a thing at the right moment. Some of the seedlings I was enabled to get pricked out from the pans when just ready; others were put aside for the want just then of room, and did not get pricked out for fully three weeks later. The result is remarkable, as that three weeks' start has made the plants put out early quite twice the size of those put out later. It is these which I fear will not be strong enough to bloom in the spring. As the soil here is a stiff clayey loam, which becomes very adhesive and full of moisture, in the winter I have it first well dug and cleaned, and then thrown into beds; over these is then laid a good dressing of road manure full of sharp grit, into which, when forked in as the planting proceeds, the young plants root freely. I think for heavy soil it is the best of manure.—A. D.

Reproduction of Lily bulbs.—Here is an example of how *Lilium auratum* multiplies itself under some conditions. On a fine bulb with two old flower-stems (1881) and three new crowns (from which three flower-stems will arise this year, 1882), two scales, old outside ones, by some accident became partially detached from the base of the bulb or rhizome. It will be observed that in this case the bulbets are not produced (as is usual) from the fractured edges or base of the scales, but from the very face of the scale itself. How hardly *L. auratum* dies in our gardens, and yet how surely does that event occur. So much is this so under pot culture even of the best, that I shall grow no more *L. auratum* bulbs that way, preferring to plant them out in prepared soil, as they can easily be dug and transferred to pots when nearly in bloom if that course be desirable. The more I see and know of *L. auratum* the more certain am I that it will never become established in ten gardens out of a hundred unless we find out a way of either growing or raising these self-formed bulbets to blooming size for ourselves, or raise seedlings every year and so grow on our flowering bulbs. Of course bulbs of *L. auratum* are cheap enough for all practical purposes, but there remains the fact that one must needs purchase in part afresh every season. We flatter ourselves that we are growing and blooming *L. auratum* well when the fact is we only develop the flowers from bulbs grown up to blooming size in Japan. We only do with *L. auratum* what we do with Dutch Hyacinths and other bulbs. Even the Dutch bulb growers seem to fail with *L. auratum*, or they would send us Dutch-grown bulbs of it in competition at sales with bulbs from Japan.—F. W. B.

Anemone fulgens.—This I have no doubt could be made to bloom freely all the winter if clumps were planted in a frame about October, so that the roots might get well established ere warmth was given them. I do not suggest that the plants should be forced or would need heat, but simply just such help as a 4-in. pipe running through a frame would give to keep the temperature day and night equal, and keep the atmosphere dry. My earliest flower on a south border

was expanded on Dec. 1 last, and others have followed. Had the bed been under glass as suggested I am sure hundreds of beautiful scarlet flowers might have been gathered.—A. D.

Collecting alpine plants.—Mr. Greenwood Pim (p. 636) says that *Opuntia Rafinesquei* is to be met with near Domo d'Ossola. I did not know that this species had become naturalised in any part of Europe. Does not Mr. Pim confound it with a similar species, *O. vulgaris*? (I do not mean of course the large erect-growing *O. Ficus indica*, which sometimes goes by the name of *O. vulgaris*).—E. G. LODER.

Birds and Primroses.—A lady in the neighbourhood of Tonbridge complains of her *Polyanthus* and *Primroses* being eaten off by birds. Can anything be done to prevent this?—C. B.

EDITOR'S TABLE.

A BEAUTIFUL WINTER-FLOWERING BUSH, with round soft heads of many delicate pink blossoms, is *Rogiera gratissima*, which Messrs. Backhouse send us from a cool house, in which it is planted out, and grows admirably. It is important to remember that it often makes a poor "specimen" in a pot in the stove. As a cool house plant, to go with the *Luculia* and *Indian Daphne*, and the other good winter greenhouse shrubs, which good gardeners plant out, it will be very precious. Grown in this free way, the habit is better, and the trusses very large and numerous.

A GLADIOLUS IN WINTER.—The fairest flower of our week is a *Gladiolus* which comes from Ireland, with the following note:—

"Enclosed are the terminal flowers of two spikes of *Gladiolus Ville de Versailles*, which I find very useful for supplying cut flowers at this season; by cutting the flowers as they open, I have had a supply for the last six weeks. The roots were potted the last week in May—six in an 8-in. pot; they were set out of doors, where they remained until the beginning of October, when they were removed to a cool greenhouse. The first flowers opened about the middle of November, so this *Gladiolus* may be grown by anyone having a house from which frost is excluded; and I think there are few things equal to it at this season that can be so easily grown."—W. CRASE, *Quartertown Park, Malton, Co. York*. Flowers exquisite in form and delicate in colour.

CENTROPOGON LUCYANUS.—A free and brilliant winter-blooming hothouse plant, with long tubular crimson flowers, freely borne, and contrasting well, both in bud and blossom, with the fresh green of the foliage. Our winter-flowering plants are becoming more abundant yearly. Not so long ago the indoor department was sombre enough in winter, but now one can have true winter gardens of flowers under glass when all is dull out-of-doors. From Mr. Dickson, Central Row, Covent Garden.

A BEAUTIFUL CHINESE PRIMROSE.—There is so much laudation of poor novelties and dishonest re-christening of old things that one is scarcely prepared to do justice to a good thing when it is talked of. This *Primrose* is not blue, but it is a beautiful pale mauve, which is a great gain; the eye is a velvety canary yellow, so to say, and goes admirably with the flowers. We only speak from seeing a number of pips, but believe it would be very effective as a plant or with its leaves. The flower is large and slightly fringed. It is called *Holborn Gem*, and is sent us by Messrs. Carter & Co., of that thoroughfare.

THE GENTIANELLA.—Fine clear blossoms of this bravest and hardiest of alpine flowers which

one may see striving to bloom in the snow-ooze on the Alps at midsummer. In a green winter it is very early with us. We wish more would grow it well, using it as a ground plant through which some beautiful slender spring bulbs might rise here and there—that is if one begrudged it enough space for its own sake. The old way of having an edging of it was very good; but an edging is never an artistic way of arranging a beautiful plant, and there are many others better. From Linton, where the true notion of a garden all the year round is being realised.

THE WINTER ACONITE.—Strong and rich in colour from Linton as if it came from some clean bit of Grass, and not splashed on a bare border where it always makes so poor a figure. It is a plant that must be in Grass and growing naturally to look well, and in that state there is nothing prettier than the little golden buttons coming up very early. In formal tufts growing with any kind of care or luxuriance it is not nearly so good. I should just like to see it at this time of year at Longleat and a few other places where it is happy wild under trees.

FROM NORFOLK.—"Norman" in wind-swept Norfolk kindly sends a strange variety of blossoms struggling to open: *Cezereons*, *Christmas Roses*, *Double Daisies*, *Gentianellas*, *Pansies*, *Violets*, *Primroses*, *Mignonettes*, *Monthly Roses*, *Stocks*, *Marigolds*, *Omphalodes*, *Winter Heliotropes*, *sweet Verbenas*, *Snowdrops*, *Wall-flowers*, *Furze*, *Carnations*, *red Honeysuckle*. It is surprising how favourable the wind-swept places are to flowers, but there is a considerable difference between these and the flowers from Linton, where they are sheltered by evergreen woods. No doubt any place in our country, however wind-swept, can be sheltered unless it is more difficult to shelter the eastern than the western shores. Mr. Ellam, at Bodorgan, in Anglesea, showed me the boldest attempt to shelter—planting in the very face of the sea dwarf things that stand its fury. Then gradually, but quickly, rising up to fine plantations of trees in a country which is generally swept bare by the sea winds. We are glad to welcome "Norman" as a disciple in a country already famous through certain sailors and gardeners of the name of Nelson.

COLOURED PRIMROSES (January 3).—Large and clear in colour and handsome, from Linton already. Partly so good, no doubt, owing to the fact that they are sheltered in fringed corners among the Grass where the branches of the Pines lie on it, and form a fringe of snug corners where the machine cannot go, or in similar happy and sheltered spots which abound in every pleasure ground. Some like best the true *Primrose* colours (which also come double and single from Linton), though they do not seem so strong just now as the coloured ones, but it is delightful to have the coloured ones. No doubt the great variety of colour will be increased as the years go on particularly with the present extensive raising of seed. When the Chinese *Primrose* is being so much improved our own should not stay behind it; it is not, however, the good kinds that are wanted so much as the will to use them in really effective and artistic ways in green places. Unless we should have a period of very hard weather, we may now look to nearly half a year's *Primroses*, not to speak of the late ones that go on in certain districts till late in summer.

PURPLE HELLEBORES.—The increase of these already begins to tell; the earliest of them come in with the old white *Christmas Rose*. They are

charming flowers, but they will not be so generally appreciated as the *Christmas Rose* unless placed and grown with care in suitable spots. For cutting the flowers will be very welcome to those who care for the quieter colours and for good form. From Mr. Groom.

OPEN AIR FLOWERS from Broughty Ferry at this season are a welcome surprise. Mr. Stratton sends some really good flowers of two Hybrid *Perpetual Roses*, light and dark kinds, also *Polyanthus* scarcely inferior to *March blooms*. *Wallflowers*, though not so good, indicate the mild weather our Scottish friends are experiencing. Mr. Stratton says "the white *Rose* is against a south wall, and has fifty such blooms as I send. The other *Roses* are from unprotected bushes."

DEEP ROSE ANEMONES.—How gloriously rich these semi-double *Anemones* with their dark centres are! One from Glasnevin is startling in the richness of its colour, especially when compared with the various *Hellebores* from the same garden on the same day. The fine forms of the *Hellebore* flowers and their beautiful foliage may seem strange to those who do not enjoy the form of leaf or blossom, but a tuft of these deep *Anemones* would give all the colour one could desire. Such fine types as this should be carefully increased and kept pure, so as to get rid of the variegated look which often spoils collections of plants that vary much. We do not want a variety that leads to mere confusion and incoherence when a number of kinds are seen together. We do want distinct and beautiful colours, and enough of each. If we get these we could all the better appreciate, perhaps, a mixed bed; at all events we can better judge of it.

CYMBIDIUM MASTERSII.—Of this lovely Orchid Sir William Marriott sends a spray of ten blooms of a pretty variety having the lip tinted with a rosy purple colour, which makes it distinct from the ordinary form, which is colourless. It is one of the most beautiful of winter Orchids, and specially valuable in the cut state.

BATEMANIA BERTII.—A wonderfully fine form of this large and curious Orchid comes from Sir William Marriott. The flower measures 6 in. across, has long pointed divisions of a rich brown polished on the surface, the centre being white with a few pencillings of brown. The heart-shaped lip is furnished above with a curious beard. It is one of the strangest of flowers, and as unlike the usual type of Orchid as any other flower.

PERNETTYA BERRIES.—In some districts these little shrubs berry, so to say, extremely well. Mr. Ryan sends a nice little set from Castlewellan, in the County Down. Grouped near the rock garden, or on banks, or among beds of dwarf shrubs, these are useful things not only for their little fat *Cranberry*-like berries, which vary curiously in colour, but also for their graceful bell-like flowers.

THE WINTER CLEMATIS (C. calycina).—A pleasant souvenir of Glasnevin is that of having seen some years ago sprawling over bushes and forming a large rounded bush of itself, this curious *Clematis* in early spring. The late Dr. Moore was very fond of it, and we feared recent winters had either destroyed the plant or put an end to such free growth and early bloom. But specimens in all stages of bud and blossom from his son prove how well the plant is suited for our climate, at least in the milder districts.

True, it has not the colour of the large saucer-blossomed Japanese kinds, but lovers of graceful "vines," as our friends across the sea call them, will like to have this child of the sunny Mediterranean isles and shores near them. It may perhaps well bear the name of winter Clematis, flowering, as we see it does, in mild years at mid-winter and on through the spring. In colder and drier districts it might perhaps keep its flowers for a later season, but we are not sure that it would do well in such.

RHOODENDRON NOBLEANUM.—Some bright specimens of this from Lord Annesley's garden at Castlewellan, in Ireland. Mr. Ryan says that they have been in flower there "since November, and just now there are some dozen bushes in full bloom." This is very good for the north of Ireland. We are apt to think too much of our mild southern districts, and not to recognise the fact that in all parts of these isles there are happy spots if people will only take the trouble to embellish them.

THE FRUIT GARDEN.

THE HAMPTON COURT VINE.

TWENTY years ago this Vine was in good health, and the foliage good in substance, and although the number of bunches did not quite amount to 2000, the berries were of good size, the bunches quite large enough for market purposes, and every bunch was well coloured. Now it must be admitted that a Vine more than 100 years old, and carrying some 1800 bunches of good market fruit—indeed considered good enough for the Queen's table—was something of a curiosity, and most gardeners who saw it at that time agreed that although both bunches and berries might have been larger, it was certainly a remarkable Vine, and well worth a long journey to see. The last time that I saw it in good condition was about fifteen years ago, and then it bore about 1600 bunches. Since then it has been failing, the bunches every year have decreased in number and quality, and the last time I saw it I was truly grieved to note that its fruit-bearing powers were almost expended. As an example of longevity and prolonged fruitfulness this old Vine has had its value; it could not last for ever. It has had its day, and probably more human beings have been under its branches than under those of any other Vine in this country.

With respect to the border, I believe that it is an acknowledged tradition that none was ever made for it; the Vine was simply planted, probably with other kinds, to cover a piece of wall, the situation being sunny and sheltered. The protecting it with a glass roof was an afterthought, and as the Vine extended so rapidly, the house was added to, until the whole of the available space was roofed in, making some 1200 square feet, and I have no doubt that at the time when the Vine had just about covered its allotted space, in the heyday of its strength and beauty, it fully justified the guide book's description.

When it so suddenly failed, there was great talk of mismanagement, and a writer in one of the gardening papers asserted that the mischief was caused by the removal of a body of earth of no great depth in front of the structure. Those, however, who were most likely to be acquainted with the true facts of the case declared that no roots were found therein, but that if traced, the main feeders would be found running down amongst the foundations of the building, many of them, it was supposed, having forced their way into sewers and drains. As a fact a report was current in the neighbourhood that the decadence of the old Vine was owing to some of the largest roots having been severed in altering or repairing the drainage of the palace. I was credibly informed that large roots were found in

some of the sewers; whether they were those of the old Vine I cannot say, but certainly from that time forth this fine example of the extension principle of training declined in health and vigour.

JOHN CORNHILL.

FRUIT PROSPECTS.

SINCE the gale of October 14, when fruit trees were almost denuded of their leaves then still green, I have been wondering what effect the defoliation would have on the fruit crop of 1882. Should we have a fruitful year an important piece of information will be gained, because it will settle a disputed point as to the practicability of pruning fruit trees earlier than we have hitherto thought safe to do so; in fact, I think it will do more than this, for it will in some measure upset the present theory regarding the functions of leaves; I have always been taught, both in reading and in practice, that the leaf had not done its proper work until it fell from the tree in a natural way at its own time, and that if it was removed by force before that the buds it nourished would prove abortive; therefore the behaviour of our fruit trees next year will to a great extent settle this point. So far as my observation goes I believe our fruit trees next year will be none the worse for the early defoliation to which they were subjected, and I base my opinion upon the behaviour of some Vines that were similarly denuded of their leaves a year or two ago by a sharp frost early in November when the leaves were quite green. These Vines did not suffer in the least from such treatment. J. C. C.

SHORT NOTES—FRUIT GARDEN.

Diseased Vine roots.—*J. D.*—The roots of your Vines have apparently been attacked by the grub of the black Vine weevil (*Otiorhynchus sulcatus*). Examine them well to a depth of 4 in. or 5 in. below the surface and destroy any grubs you may find on them. Late in the spring and during the summer spread sheets every now and then under the Vines, and at night take a bright light into the Vinery; this will often cause the weevils to fall. Also give the Vines a few sharp taps, which will cause any of the beetles which may be on the Vines to drop into the sheet, when they may easily be secured.—G. S. S.

Root pruning.—*Mr. J. E. Waiting* (p. 553) has made some observations on root pruning and the management of orchards in the locality of Grange-over-Sands, to which I think some exceptions may be taken, as several of the farmers in that neighbourhood annually secure a good portion of their rent from selling the production of their orchards. I think this fact of itself is a refutation of the charge of bad management and want of attention, so freely bestowed by *Mr. Waiting*. Damsons generally are a good paying crop, many of the fruit growers in the locality clearing as much as £50 or £60 per annum with this fruit alone. In some few of the gardens on the shores of Morecambe Bay that have wet subsoils root pruning may be a necessity, but in the majority of orchards which are planted on the limestone rock it would simply be labour wasted.—A GRANGE GARDENER.

Neglected orchard.—"Pyrus" case is by no means a solitary one, for, unfortunately, too many of our existing orchards are neglected. I would not, however, advise any rash measures, for remedial ones cannot be suddenly applied with safety; on the contrary, the restoration must be the work of time. Proceed by thinning out the cross-pray-like shoots, and top those trees that have run up long without sending out spurs; then thin out the small, weakly undergrowth, clear the stems of Moss and Lichen, and dust the twigs with fresh slaked lime; then give a good dressing of manure, placing it at least as far out from the stem as the branches extend. Follow this up for a few years, and the oldest and most neglected trees may be restored to fertility. If the soil is undercropped, clear it and sow with Grass, feeding it off with sheep.—J. GROOM.

THE GARDEN FLORA.

PLATE CCCXVIII.—DOUBLE-FLOWERED IVY-LEAVED PELARGONIUMS.*

THE great improvement that has taken place of late years in this section of the Pelargonium family greatly tends to increase their popularity. For baskets, vases, or window-boxes few plants of similar habit can equal them; and now we have amongst them not only single, but many double-flowered kinds. Six years ago there were no double-flowered sorts in this class; now we have many, and numbers of them are really distinct and most valuable for bedding and other purposes, and few have an idea of what splendid specimen plants they make when trained on trellises. Although the foliage alone of the single-flowered section is sufficient to warrant its culture, yet its value in a decorative point of view is greatly enhanced by the beauty and profusion of its flowers during the spring and summer months. These are of all shades of white, pink, mauve, and crimson.

The varieties figured in our plate consist of *Beauté de Lyon*, scarlet; *Anna Pfitzer*, salmon-pink; and *Innocence*, white—single sorts. The double kinds are: *Dr. Brocca*, mauve-purple; *Robert Fortune*, magenta-purple; and *Gloire de Orleans*, red-purple.

Other good sorts are, among double kinds, *A. F. Barron*, lilac-rose, large and full, short-jointed and free; *Candeur*, very double, flowers of a beautiful pure white, vigorous habit; *Galilee*, beautiful soft lilac of a most pleasing colour, trusses and flowers in fine form; *Madame Crousse*, delicate rose, veined in the upper petals with deep maroon, flowers very large and semi-double, vigorous; *M. Dubus*, deep reddish-pink, and distinct from all other varieties; *Rosa plena*, light lavender of a most pleasing hue, flowers double and finely formed; *Sarah Bernhardt*, fine large flowers, pure white, upper petals feathered maroon; *Viscountess Cranbrook*, flowers of a pretty white satin-rose, very double and short-jointed.

Single-flowered varieties consist of *Bridal Wreath*, ground colour pure white, with a very small and delicate pink centre; *La France*, beautiful light rose, flowers and trusses large, habit free and strong, short-jointed; *Madeline Reiterhart*, flowers of very large size, colour, cerise-pink, noble flower; *M. de Boringe*, magenta-crimson, very large and fine (this and the last-named variety are both strong growers); *Mrs. H. Cannell*, trusses of large size of a deep mauve-purple, flowers round and very striking.

CULTURE AND POSITION.—These all thrive well under the treatment generally given to zonal and other Pelargoniums, but being all of a drooping or trailing habit they require some support while young, but when finally planted out they may be allowed full freedom of growth, drooping from baskets or boxes, or rambling over rockwork. We have seen pretty specimens grown as dwarf standards grafted on seedling zonals, reminding one of the grafted *Epiphyllums* of our stoves; but we think them most effective when allowed to ramble freely over rockwork or drooping from baskets or boxes. All are easily increased by cuttings either in spring or autumn.

The *Prickly Pear* illustrated in THE GARDEN of Dec. 3 is very correct. It grows wild in this section of the country (near New York City) in the crevices of low, flat rocks in the open fields, exposed to the full glare of the sun in summer, and lives through our coldest winters. The flower is followed by a fruit, which I have seen children eat when fully ripe.—E. MYERS, *West Farms, P.O., New York City.*

* Drawn from specimens grown in *Mr. Cannell's* nursery at Swanley.



ALL LEAVED FELD-AMM



SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

A PRETTY and fragrant table bouquet is made of rose-pink Chinese Primroses with Mignonette and plenty of variegated sweet-scented Geranium; another, of the same pink Primroses, with some of the double white, and moderate-sized leaves of one of the more cut-leaved kinds that have a reddish tinge. A small white china basket is filled with *Habrothamnus elegans*; one little spray follows the handle for about a quarter of its arc, and a cluster or two fall over the edge and are beautifully defined against the white porcelain. A large trumpet glass has Poinsettias—five red, one white. They are apt to flag soon after being put in water, but happily there is an easy remedy. They should be plunged overhead in slightly tepid water in anything large enough to hold them completely immersed; it is all the better if a wet cloth is laid over the mouth of the vessel. They may remain so for a few hours, or a whole night, and will then come out quite fresh and stiff. The same treatment may be repeated two or three times with the identical subjects, so they will remain useful for something like a fortnight; their leaves will gradually fall, leaving bare stems, but some foliage of green *Aucuba* will handsomely supply their place. This bath to stiffen fading flowers may be used for many things besides Poinsettias; more flowers than one thinks likely, including delicate Tea Roses, may be so preserved, and it is the only way of making many stove Ferns reasonably available with cut flowers. From the open garden we have a glass of *Iris stylosa*, with its own graceful sword-shaped leaves. The blooms are best picked while still in bud to open in the house, as their texture is so fragile that they get tattered by the least rough weather, or even by friction of their own leaves. This is not only the case in England; at home in North Africa it is common in windy weather to see the flowers hanging in shreds; therefore it is prudent to plant them in as sheltered a place as possible. In pots we have some of the broad-leaved, handsomely marked *Crotons* and berried *Solanum*.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

AN effective arrangement may be made with the following subjects to be had now, selecting as the receptacle for them a moderate-sized trumpet vase. Cut three or more of the showy heads of Poinsettia and five or six spikes of *Calanthe vestita rosea*; intersperse freely with the former fronds of Maiden-hair Fern; then let the spikes of the *Calanthe* be inserted sufficiently long in the stem to stand well above the showy bracts of the Poinsettia. To an arrangement of this kind I once added a few blooms of a bright scarlet seedling perpetual Carnation, and perchance a single one (even these are not to be despised), and one bloom only of the Amazonian Lily, and a pleasing change for the dull days of winter was the result. Neither the Poinsettia nor the *Calanthe* would have lasted much longer on the plants, therefore advantage was taken to make the most of them. For another rather small vase of the same form I selected developed trusses of Early Roman and Paper-white Narcissi, and three or four spikes of the white Roman Hyacinth each with their own foliage, taking care to have a good length of stem, so that when arranged they should not look crowded. This gave another distinct grouping. In a somewhat shallow vase or bowl a few trusses of the single forms of Chinese Primrose will look well, using two or three distinct colours and their own foliage. A vernal tinge to this may be given if desired by adding a few Snowdrops or Violets. In my opinion the single forms of *Primula sinensis* are far better and more effective in a cut state than the double ones. The latter, however, may perhaps be a trifle more durable, which in packing flowers to send a distance is certainly a consideration. For specimen glasses for the dinner-table Camellias will now be ex-

treinely useful. I generally contrive to cut these with sufficient stem to hold them safely in the glass. In this way they last a good time. Sometimes they are disposed to drop from the stem; when this is the case a little gum arabic in solution will hold them together. This is preferable to wire, which soon leaves a deposit on the glass. When, from any cause, glass vases happen to become discoloured or furred, a weak solution of hydrochloric acid will easily remove the stain, a better plan than undue rubbing, thereby endangering the glass.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

IN undertaking this department I would observe that I shall confine my observations to my own practice, a line chosen not on account of its superiority, but because I think it best, and withal the only safe way to ensure the matter being original. Of course readers must decide for themselves as to whether all that is recommended is worthy of their adoption or is likely to be successful considering their circumstances, requirements, and, above all, locality. If read in the light of the above conditions I trust that all may find some hint that will help them, or some observation that may tend in that direction.

Abutilons.—It has occurred to me that this department would be rendered more interesting if each week some one plant, suitable for flower garden purposes, were selected for special mention as to culture, and how and with what other plants to arrange it to the best advantage. I therefore propose to take them alphabetically, beginning with those best suited for summer bedding, and first on my list is the Abutilon. The varieties of Abutilon have increased with wonderful rapidity during the last few years, but I name only those that have done well as bedders. These are *Duc de Malakoff*, which has very large flowers, in colour like those of the old *stratum*; *Boule de Neige*, white; *Lemoine*, sulphur-yellow; and the variegated kinds *Darwini variegatum* and *Thomsoni variegatum*. The two last are effective as "dot" plants in large masses of *Perlargonium* or dark-leaved plants used for the sake of their foliage, and they are almost equally well suited for massing by themselves, but still better for planting thinly over entire beds, and using either *Violas*, *Verbena renosa*, or *Verbena Purple King* in the interstices, the whole forming one of the finest "shot silk" bed arrangements that can be conceived. The preceding kinds are the most effective when used singly, either as centres, or equidistant over large beds of naturally dumpy-growing bedding plants. All the kinds are best propagated in autumn; they strike readily in a frame if afforded a bottom-heat of 65°. As soon as struck they should be taken out and wintered in store pots in a cool house or pit, and at the beginning of February be potted off singly in good loam, and be grown on sturdily till planting out time at the end of May or early in June.

Shrubberies.—We are now at work among these, cleaning out all leaves that would be likely to blow out and cause untidiness; where possible without injuring the roots, preference is given to forking them in, but before doing this the plants are regulated as to space, either by thinning out and replanting them in other positions, or else by cutting out straggling growths, so as to keep each plant from injuring its neighbour. The margins of turf are then cut, and any vacant ground in front furnished either with hardy bulbs or spring-flowering plants, such as *Wallflowers*, *Forget-me-nots*, *Polyanthuses*, *Primroses*, and similar plants. In forming new beds for shrub planting the ground should be trenched as deeply as the nature of the soil will allow; plenty of decayed manure should be worked into it, and for those beds that are intended for what are generally termed American plants, *i.e.*, *Azaleas*, *Rhododendrons*, *Kalmias*, &c., peat soil is desirable, but by no means essential, as they do almost equally well in pure loam, provided it is not too heavy and is free from chalk, which

seems to be rank poison to American shrubs and Conifers, and their growth should never be attempted in soil of this character. See that the plants are not buried deeper than they were previous to removal, and also that the soil is well worked in and consolidated about the roots. These precautions may seem of little moment, but they make all the difference between the bad or well-doing of the plants.

General work.—High keeping is certainly most desirable at this dull season of the year; therefore lawns should be kept clear of leaves and worm-casts by frequent rolling and sweeping; walks should be cleared of Moss and weeds by turning, and, where necessary, regravelling. The best of all walk preservers is the roller; when this is used freely, weeds and Moss have a hard time of it, and firm walks are the result. In the event of frosty weather setting in, plenty of work may be found in carting out soils and manures to spots where they are required, throwing together leaf heaps, and burning up prunings or other rubbish, the ashes of which form a valuable manure for any crop.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Forced hardy shrubs.—There is much difference in the result which follows the forcing of hardy shrubs consequent on the more or less matured condition of the preceding season's growth, and in this a good deal depends on the soil and position in which the plants to be forced have been grown. Where much of this kind of stock is required it is well to select a place wherein to grow them that is best calculated to insure the requisite conditions, and if the natural soil is not of a character such as to suit them, it should be prepared. Heavy tenacious land, where the roots of plants grown in it are usually deficient in quantity, and of a long straggling description, is not well adapted for the preparation of shrubs for this purpose, as they take up badly; whereas if the soil is moderately light and free, most of the roots can be preserved, and in addition the plants in soil of this character are generally much more compact and better furnished with bloom-buds. In most gardens suitable material for the purpose can be found in the old potting soil ordinarily consisting of a mixture of loam, peat, and vegetable mould with sufficient sand, and if an open position facing the south exposed to the full sun is available, a stock of such things as *Viburnums*, *Azalea mollis*, *A. amens*, double-flowered *Flums*, *Lilacs*, *Deutias*, *Andromedas*, *Laurustinus*, *Rhododendrons*, and *Kalmia latifolia* may be grown. In parts of the kingdom where this last-named shrub flowers it is one of the most beautiful of all hardy plants. Where a sufficiently large piece of ground devoted to this purpose exists, so that the plants can be prepared by frequent transplanting, the effect of which is to induce a close compact habit with a disposition to form plenty of bloom, it will be found a great assistance in providing the means for a continuous supply of forced flowers through the winter and spring. There is no better time of the year than the present for the formation and planting of a reserve plot of this description, and to no better purpose can the annual accumulation of old potting materials I have mentioned be turned. All that is further needed is to see that the plants are not placed too close, to keep them slightly pruned into shape by the reduction of straggling shoots, and the yearly addition of sufficient successional small plants to take the place of those that in time get too large for potting. The advantage of taking the little trouble thus required to have at hand small compact, profusely flowered examples of this kind of stock is apparent in the Continental grown *Lilacs*, *Azalea mollis*, and *Laurustinus*, which, by judicious treatment, are prepared in a way that enables their yielding a profusion of blooms from plants that are so small as to take up little room, and are much more sightly than the rough, often untidy examples dug out of the shrubbery for forcing. Continue

to introduce once a fortnight enough plants of the above description to meet the demand, being careful not to hurry them by too much heat, or the flowers will not last long, and be of little use for cutting.

Gardenias.—There are few, if any, flowers held in greater estimation or that are more difficult to produce during the depth of winter than Gardenias, for even where there is a large stock that have been especially prepared for blooming at this season, and with plenty of heat at command, they open very slowly without sun. The best means I have ever found to have these flowers in winter is to get the crop of buds well forward in autumn, to keep the plants with their heads close up to the glass in a light house where there is a good supply of heat at command, being careful not to give too much water at the roots, or to keep over much moisture in the atmosphere, and not to use bottom-heat, as any of these conditions are sure to cause the buds to fall off a little before they should open. *G. citriodora* deserves a place wherever delicately-scented flowers are liked; small and in appearance unlike others of the family, it is much easier to have it in bloom through the winter months where there is sufficient heat to induce the flowers to open; it takes' up very little room and is a profuse bloomer.

Bougainvillea glabra.—This, the freest flowering and most easily managed of the Bougainvilleas, can be had in bloom early if plants with well ripened wood are at hand. Where they have been dried off so as to cause the leaves in a great measure to fall the plants may be cut in, removing the small shoots that are too weak to produce flowering growths, and shortening to a convenient length the strongest; after this if the ball of earth is very dry it will be best to soak it for several hours in a vessel of tepid water large enough to admit of the ball being covered. This Bougainvillea requires plenty of root room; if too much confined the quantity of flowers will be proportionately limited; consequently if larger pots are needed they should be given before the plants are started, but in this case there must not be any disturbance of the roots. Where no potting is required manure water should be given as soon as growth has fairly commenced. A brisk heat is necessary to get it to move freely at this early season, but with 65° in the night and a rise by day proportionate with the weather it will be in flower in about ten weeks, and when started at this time and kept going in a temperature as above indicated it will bloom three times before the season for again resting it will have arrived.

Allamandas.—The earliest rested of these may also be started. It is best to cut them well in, removing all the shoots that have not been fully ripened up. In the case of young examples in comparatively small pots they should have more room at once, seeing that the balls are thoroughly soaked through beforehand, otherwise difficulty will be found in getting the soil moistened afterwards; if the specimens are old and the soil in the pots is exhausted they should be half shaken out and potted in good loam well enriched with rotten manure; at the same time the plants ought to be cut well in, and if they are to be grown on trellises these should be fastened to the pots at once, and the plants trained to them.

Cyperus alternifolius.—The variegated form of this plant is usually liked the best, but the green kind is also worth growing, although not so showy. Both are most useful when in small pots—6 in. or 7 in. in diameter. The present is a good time for dividing any that have got too large, turning them out of the pots, separating them so as to leave two or three crowns to each. The variegated sort generally keeps its colour best when grown in loam. The plants as soon as they begin to grow should be kept well up to the light, as this also tends to preserve the variegation and keeps them stouter.

Amaryllids.—Where a sufficient stock of these is cultivated, and their growth was completed

early so as to admit of their being put to rest in good time, a portion may now be started, as by regulating the period of growth and rest, they may be had in at almost any time. They will bear a brisk heat, and if the bulbs are strong they will seldom fail to flower. Give the soil a good soaking. This is earlier than it would be advisable to start the main stock, but if a few be put in heat at a time they will give a succession, and the earliest flowered portion will come in when flowers are not too plentiful.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East Indian house.—Let the ventilators in this house be closed early on sunny days so as to diminish the amount of fire-heat and thus benefit the plants. In all Orchid houses it is well to have ventilators in the walls just opposite the hot-water pipes, and these should be open every night in mild weather, and even on frosty nights if the air is calm. The air gets heated as it passes over the pipes, and thus circulates amongst the plants night and day. If the temperature is up to 65° at daybreak in the morning, the top ventilators should be opened at once if the weather is mild, but only to the smallest extent; so much as to cause the temperature to fall would be too much. If there is a sharp frost, better not admit air until the sun rises sufficiently to raise the temperature a few degrees. No time should now be lost in getting all the repotting of *Saccolabiums*, *Angraecums*, and other plants of that character done. The pots should be half full of drainage, and the potting material should be clean sphagnum. We use well dried material in which to pot the roots, mixing it with crocks and charcoal, finishing off the tops with live, clean sphagnum cut up with a knife. The small growing *Angraecums* succeed better in pans or baskets than in pots. Than these winter-flowering Madagascar Orchids there are few more desirable. All the large growing species, such as *A. eburneum* and *A. sesquipedale*, succeed best in pots, and large plants of them form noble ornaments to this house in winter. The first named is not so much grown as it ought to be, but large specimens in bloom cannot fail to please. The pretty little *A. citratum* is most prolific when suspended from the rafters, and cultivated either in shallow pans or baskets, as are also *A. Ellisii* and the form of it called *A. articulatum*. These do best suspended in quite the warmest part of the house. With the exception of *A. falcatum*, all of them require plenty of heat. We do not put any water in the evaporating troughs until a month or six weeks later than this; we rather depend for moisture from water sprinkled on paths or stages. The evaporating troughs filled with water form an important aid to culture when the plants are in full growth.

Cattleya house.—As regards the best time to repot certain occupants of this house, a very successful Orchid grower told me the other day that his plan was to begin as soon as he could after the new year with the East India house, and that he was usually forward enough to pot the plants in the Cattleya house in February. Some *Aerides* in this house as well as *Vandas* are, I find, now beginning to make new roots, and that being the case no time should be lost in repotting them if they need it. All the *Vanda* tricolor section require to be potted now, and *Aerides* Fieldingi, *A. Lindleyanum*, *A. crispum*, &c., require similar treatment. I do not pot any of these annually unless it is seen that the potting material about the roots is rotten and requires removing. Another very successful grower reports every year. In repotting take care not to injure the roots. In arranging the plants see that those that have a tendency to be shy bloomers are placed in the lightest part of the house and as near the glass as possible. Some are better in the warmest end; others prefer a cool position. We would place *Cattleya gigas*, *Doviana*, *lobata*, &c., at the warmest end and near the glass, while such plants as *Laelia majalis*, *acuminata*, *autum-*

nalis, &c., should be placed in the coolest part—the first named near the glass and well exposed to the sun. *Dendrobiums* of the tall-growing types, such as *D. Dalhousianum*, *nobile*, *thysiflorum*, &c., and also *Vandas* and *Angulos*, may be further from the glass; the smaller-growing *Dendrobiums* may be suspended in baskets or in pans from the roof; *D. crassinode*, *Wardianum*, and all the pendulous-growing species succeed best and look best in that way, while the dwarf growing upright section, of which *D. Bensoniae*, *Parishii*, *albo-sanguineum*, and others are examples, make the best and most sturdy growths in that position. Of course when in flower they may be arranged on the stage nearer the eye, and there, too, the flowers last longer than near the glass. One of the best of Mexican Orchids is the charming *Odontoglossum citrosimum*; this should still be kept as dry as possible at the roots, so much so as to cause the back bulbs to shrivel. Thus treated it makes strong healthy growth next season. On the other hand, *O. Phalenopsis* must not be allowed to become so dry; plants of this are now making their growth and must not suffer from want of water at the roots. Watch carefully now for slugs, &c., as the spikes of many Orchids are showing, and a stray marauder might blight the best prospects of a twelve-month's labour and anxiety. They seem to have a preference for *Odontoglossum hastulatum*, *Oncidium crispum*, and *O. Marshallianum*.

Cool houses.—It may not be out of place to make a few remarks on the construction of a cool Orchid house, as the culture of these beautiful flowers seems to increase more and more, and a house may be constructed for them in a position where the other sections of Orchids would not succeed. Some of the best grown plants I have ever seen were in a lean-to facing the north. A house in the form of a lean-to, say from 9 ft. to 12 ft. wide, against a north wall, and high enough to allow a tall man to walk down the centre of it with comfort, will answer as well as any other form. Span-roofed houses, too, seem equally well adapted for them, judging by results; the plants not only grow well in them, but their flowers last long in good condition after they open. The advantages possessed by a lean-to against a north wall are, first, the least cost in construction compared with a span-roofed house, less cost for fuel, and very much less attention as to watering, shading, and ventilating. In all cases I would have ventilation in the front walls, and in the case of lean-to houses also in the back wall near the top, in order to secure ventilation in wet weather. The stages should also be built so that some material, such as gravel, spar, or, as in Mr. Bockett's house, fine coal may be used, on which to stand the plants. The stages ought not to be so wide that the plants cannot be searched every night for slugs and snails. We have required very little artificial heat in our house this winter, except during short spells of frost on three or four occasions. The temperature has seldom fallen below 50° with out any heat in the pipes. Last winter when we had to fire so much to keep the temperature up to 40° and 45° the plants did not look nearly so well at this date as they do at present. Endeavour to keep all plants that are in bloom in good condition as long as possible. I was looking over a collection of cool Orchids in a low, damp house the other day, and greatly admired the fine clean spikes of *Odontoglossum crispum*, which I was told had been in flower for more than three weeks. I remarked on their freedom from spot, and was informed that the house was seldom damped in winter or the plants watered.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Orchard house.—If the roots of the early trees were in a satisfactory condition when forcing was commenced, the blossom-buds will now be swelling fast, and the earliest kinds will be ready to expand. When this stage has been attained fumigate the house to destroy any green-

fly which the gentle warmth may have brought into existence, otherwise it will prove extremely troublesome, and do serious mischief to the crop before the later kinds have set their fruit. Pay particular attention to watering and syringing with tepid water until the blossoms begin to expand, and avoid wetting the trees during the time they are in flower, but on no account allow the roots to suffer from want of water. Allow the temperature to range from 50° to 55° on mild nights, with a little air, to 60° or 65° on fine days, with an increased circulation, and impregnate the flowers with a camel's-hair pencil about noon when the house has reached the maximum and the atmosphere is dry.

Later houses.—Where the trees have been removed to the open air to make room for other subjects, preparations must now be made for replacing them under glass, as owing to the mildness of the season the buds on many of the Peaches, Plums, and Cherries are now getting forward, and unless they are protected with nets or carefully watched, small birds in wooded districts will soon destroy the most prominent and of course the most valuable flowers. If cleansing and painting has been delayed, get it done at once; examine each tree as it is drawn out of the plunging material, wash the shoots with strong soapy water to free them from scale, scrub the pots, and see that the drainage is satisfactory. If space is limited Pears may be left out till next month. In the final arrangement of the trees, Peaches, Nectarines, and Figs should occupy the warmest part of the house, Plums, Cherries, and Pears the coldest; but choice kinds of the latter will be improved by removal to a warm, airy situation when the fruit is swelling and ripening. If pot Strawberries are grown in orchard houses, they should be placed on shelves near the glass where they can be well syringed and have the full benefit of light and solar heat.

Cherries.—Where only one house is devoted to Cherries the end of the old year or the beginning of January is a good time to begin forcing, if forcing it can be called, as owing to the excitable nature of the trees, the great art of growing house Cherries successfully, consists in the maintenance of a low temperature ranging a few degrees higher than the external air when the weather is temperate, and as low as 40° at night when very severe. Like all stone fruit trees which are liable to be affected by aphid, cleanliness is very important, and no trouble should be spared in preparing for a good start. When this has been done soft-wooded plants like Geraniums, Cinerarias, or other subjects liable to carry green-fly should be excluded, and the everlasting pot Strawberry should be dipped in a strong insecticide before it is allowed to have a place. Assuming that the borders are inside, see that they are well mulched with manure and watered with water at a temperature of 70° to 80°. Syringe daily, warm the pipes every morning with air, ventilate freely at 8 a.m., and shut off fire-heat when the house is closed on mild afternoons. Early houses started at the end of November will be getting well advanced, and the blossoms on some of the trees will soon be open. When this charming picture begins to unfold, syringing must be discontinued, otherwise the petals of the flowers will damp before the fruit is properly set. Keep up a circulation of air unless the weather becomes very severe. Let the temperature range from 45° at night to 56° by day when fire-heat is needed, and a few degrees higher under gleams of sunshine. Fumigate before the blossoms open, and fertilise with a brush when the pollen becomes free.

Melons.—Where early Melons are required and a light, efficiently heated pit is at command, a few seeds of some free-bearing early kind may be sown at once in small pots and plunged in a bottom heat of 80°, which can be kept up by the aid of hot-water pipes running beneath the bed. The great drawback to Melons at this early season is want of light, a difficulty which may be met by keeping the young plants close to the glass, which must be clean, and by covering with

bell-glasses in preference to mats on severe nights. Immediately after the seeds are sown set about the preparation of suitable materials for making up the plunging bed in which the plants are to grow and ripen their fruit. For this purpose well-worked tan gives least trouble, but in wooded districts sound Oak leaves produce better results, as the moist heat from decaying vegetable matter is more favourable to a clean healthy growth of vine and foliage. Another important item in successful Melon culture is a good supply of strong loam from an old pasture, which should be cut some months before it is wanted for use, and tacked in an open, airy shed or in long narrow ridges out-of-doors, with some kind of covering for throwing off heavy rain and snow. If this is not at hand lose no time in securing enough for the season, and expose it to the atmosphere, as wet crude soil is sure to lead to disappointment if not to complete failure.

Pines.—With the exception of plants which are swelling off fruit, and the early batch of Queens recently plunged in strong bottom-heat, the general stock of Pines may be kept very quiet until the end of the month, when with increasing length of days and brighter weather they will soon start into vigorous growth, and make better plants than if kept in a state of excitement through the dead months of December and January. Queens, Rothschilds, and Cayennes rest and winter well in a bottom-heat of 70° to 75°; but in the event of the old material in which the Queens are plunged, sinking much below the above figures, it will be advisable to open the valves for a short time, and water the bed with hot water at a temperature of 90°, care being taken that it does not pass over the sides of the pots to excite a portion of the roots before the proper time arrives for starting them into fruit. Keep a close watch upon plants now about starting, and increase the supply of stimulating liquid to the roots as soon as the fruit can be seen, also atmospheric moisture by damping all available spaces between and around the plants, but avoid wetting the fruit until well above the foliage and the flowering period is over.

Successions.—Examine these once a week, and see that the plants in small pots, placed in near proximity to the bottom heat pipes, do not want for water. Where this danger does not exist but a little water will be needed for the present. Give a little air on fine days to prevent the plants from becoming drawn, and cover up at night to economise fire-heat. Prepare crocks, pots, and soil for use next month. If the latter, good turfy loam is not in suitable condition, break it up with the hand, and expose it to the atmosphere, where it will become dry and warm before the time arrives for potting.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

ALL Ashtops and early varieties of Potatoes should now be exposed to the light. The main object is to keep them back; long white growths not only weaken the tubers themselves, but have a tendency to invite disease. The more robust and wood-like stems our Potatoes have, the less we have to fear from disease. Later varieties will also be greatly benefited by exposure and turning over. I am, of course, speaking of the stock for next season's planting; those used for food should never be subjected to light. Look over quarters of Snow's Broccoli, cutting close to the surface of the ground all heads that are showing, and stack them up close together in a shed. In this way they last for a very long time in the best possible condition at this season. It is a fact that cannot be too widely known that 4° of frost on Broccoli or Cauliflowers not only spoils their colour, but also their flavour, therefore be not caught napping. Digging and trenching all land as it becomes vacant should be proceeded with, and at this festive season, when families assemble, give the garden an extra clean up. The weather being still mild supplies in the forcing department are abun-

dant without much trouble. Our winter Tomatoes are looking well, and we get from 10 lbs. to 12 lbs. a week of nice light fruit—a valuable addition to our esculents. Of French Beans, truth to tell, we have a dearth, in consequence of substituting Sir Joseph Paxton for Osborn's forcing Bean; but no doubt my friends will help me, and all will soon be right again. Cucumbers are doing well. Keep the shoots thin, the house shut and not too damp, and success is sure to follow. The same range of temperature as advised in my last will do well. Of Asparagus, Seakale, and Rhubarb keep up plentiful supplies, as formerly directed, and at the same time use your own discretion in the matter. Mustard and Cress, Tarragon and Chervil, all now want attention. These things, though small, are of great importance; so keep up good stocks of all by sowing and replanting.

NOTES OF THE WEEK.

A GIGANTIC POINSETTIA.—Lately we have heard a good deal about big heads of Poinsettia, but lately we saw in Sir Trevor Lawrence's garden at Burford Lodge, Dorking, a plant that astonished us. It is, we should say, from 10 ft. to 12 ft. high and 6 ft. through, planted out in free soil in a spacious span-roofed stove. It is the double-bracted or plenissima variety, and each branch is terminated by one of its huge clusters of bracts, the effect of which in contrast with the deep green foliage which clothes the plant to the ground may be better imagined than described. The colour of this double variety is different from the ordinary kind—not so glaring, and to us more pleasing. It is well worth growing notwithstanding the disparaging remarks that have been made with respect to it. In large stoves the Poinsettia should be planted out more often than it is, as such specimens as this are so different from the small plants grown in pots, and they have an imposing and gorgeous appearance.

DENDROBIUM NOBILE.—One word in praise of this old and dear Dendrobe. It is simply just now magnificent—fine strong growths, and still finer flowers. One plant only put into a basket two years ago has 100 flowers expanded. No doubt many have plants with thousands; still mine is none the less charming.—R. GILBERT, Burghley.

SALVIA LEUCANTHA.—This is such a distinct looking plant that any shortcoming with regard to its showiness is thereby amply compensated. Its long slender spikes, clothed with a dense white woolly down, and the deep violet-purple flowers render it highly attractive in the greenhouse at this season. We have never met with it grown so finely as in Sir Trevor Lawrence's garden at Burford Lodge, Dorking.

GAILLARDIA PICTA LORENZIANA.—From Mr. Lorenz, of Erfurt, with whom this remarkable plant originated, comes a coloured illustration representing three or four varieties of it, including a yellow one. It is quite unlike an ordinary Gaillardia, all the florets, according to the illustration, being transformed into tubular ones, and arranged in a dense globular mass. If the plant is as beautiful as it is represented to be, it will indeed be an acquisition.

CHRISTMAS ROSES.—A row of these grand flowers planted two years ago is just now (January 3) in full flower; they are the *beau ideal* of our gardens. Some of the plants sheltered under hand-lights almost rival the lovely *Eucharis amazonica* in purity of colour.—R. GILBERT, Burghley.

CHINESE PRIMULAS OUT-OF-DOORS.—It may perhaps interest some to learn that we have had two white Chinese Primulas in bloom in the open garden for the past month, and in spite of

snow a little while back and two rather severe frosts just before Christmas, they are looking remarkably fresh and healthy. I may add this is South Hants and about five miles from the coast.—A.

CELSIA ARCTURUS.—This bright little greenhouse plant has been in flower with me since early summer without intermission, or nearly so. In fact, the more it is cut back the more floriferous it appears to be, and its bright yellow spikes render it very attractive. It is an especial favourite here partly on account of the beauty of its quaint little flowers and partly from the fact of its being always in bloom.—THOMAS SHAW, *Riverston, Nenagh*.

BERRERIS JAPONICA.—This is at the present time one of the most attractive of outdoor shrubs: owing to the mildness of the season it is in many places in full flower or rapidly approaching that stage, and if the weather be not too severe its pale lemon-coloured flowers will be succeeded by berries, which when ripe are very ornamental, being densely covered with a glaucous bloom.—H. P.

NEVUSIA ALABAMENSIS.—Kept in a greenhouse temperature this rare American shrub, sometimes called the Alabama Snow Wreath, has been in flower for the last month. The young leaves remind one somewhat of those of *Spirea opulifolia*, and the flowers, which are produced along the whole length of the shoots, are, owing to their prominent stamens, of a tufted, brush-like character, and pure white in colour.—H. P.

VIBESIA BRACHYSTACHYS.—This, one of the best of the Bromeliads, is now finely in bloom. The flower scape rises to a height of about 1 ft., on the upper part of which the flowers are arranged in two opposite rows. The bracts, which form the principal attraction, are at the base, of the brightest crimson shaded more or less with purple, and gradually blended with the orange colour of the upper part. The effect of such showy colours is heightened by the leaves and flower-stems being of a very bright green.—H. P.

FROM GLASNEVIN.—Although we had severe frost (13°) just before Christmas it has become again quite mild, so that forty-four plants were in flower out-of-doors on January 1 to herald in the new year. The following is a list of them:—

Anemone fulgens	Helleborus niger maximus
double and single	orientalis Dr. Moore
Aubrietia deltoidea	olympicus
Arabis albidia	pallidus
procurrens	Hepatica angulosa
Alyssum saxatile	Iris cretica
Cyclamen ibericum	stylosa
Atkinsii	Jasminum nudiflorum
Clematis calycina	Lithospermum orientale
Chimonanthus fragrans	Othonna
Daphne Mezereum	Phlox stolonifera
Erica carnea alba	Pyrus japonica
mediterranea	Primroses, various double
Euphorbia Heldreichii	Polyschia Chamaeaurum atro-
Helleborus atrobrunneus	purpurea
antiquorum	Potentilla alba
feridus	Veronica speciosa
graveolens	rupestris
hybridus F. Heinemann	Andersonii
kamtschatkensis	Vinca major
laxus	Viburnum Tinus
niger	Wallflower

It will be seen that nearly all of them are flowering at a season when they ought to be reposing quietly and recruiting themselves for the coming season. They are, nevertheless, none the less welcome, and appear far brighter now than they will later on. There were no fewer than twelve distinct Hellebores in flower, varying from the pure white of *H. niger* through various shades of colour to the bright and attractive hue of *H. kamtschatkensis*. Next to these the best thing in

flower is undoubtedly *Clematis calycina*. This pretty evergreen species, with its graceful Fern-like foliage, is just now covered with numerous pale yellow flowers about as large as those of *Clematis montana*, but not nearly so fugacious as those of that species. I send you blossoms of some of them, and also of *Dracena recurva* and *Brunfelsia americana* from the houses; also of *Greigia spheacellata*, another of those beautiful Bromeliads of which I sent some account last week.—F. W. MOORE.

GLADIOLUS IN WINTER.—I have at present in bloom in the conservatory here several potfuls of *Gladiolus Gloire de Versailles* in lovely condition, their spikes of delicate Orchid-like flowers being shown to great advantage contrasted with the deeper tints of *Salvias*, *Cinerarias*, &c., by which they are surrounded. Added to their utility, the ease with which they can be grown should obtain for this class of flowers universal favour.—THOMAS SHAW, *Riverston, Nenagh*.

DOUBLE-FLOWERED ROSE-LEAVED BRAMBLE.—This proves to be a most valuable shrub for winter flowering, producing at mid-winter a profusion of large globular white rosettes that are as useful for cutting purposes as they are ornamental on the plant. It is grown extremely well in the Burford Lodge garden, Dorking, by Mr. Bain, and we saw the other day a plant of it thickly furnished with bloom; in fact, a specimen in itself. Those who have it not should be possessed of it for pot culture. Its name is *Rubus roseifolius* fl.-pl.

APHELANDRAS.—Remarkably bright and effective at all times are these, but doubly so now when flowering plants in our stoves are but few. Apart from the beauty of their flowers ranging through the various shades of scarlet and orange, and in the case of *A. punctata* of a yellow colour, the foliage of some of the species is so beautifully marked that even when without flowers they take high rank as ornamental plants. The silvery-veined *A. Leopoldi*, and in a less degree *A. aurantiaca*, the dark blackish green foliage of *A. nitens*, and the peculiar mottled lanceolate leaves of *A. punctata* belong to the class of fine-leaved plants.—H. P.

CANNA EHEMANNI.—This splendid plant has attained its highest degree of beauty in Sir Trevor Lawrence's garden at Burford Lodge, Dorking, where we saw it a few days ago in fine flowering condition in one of the stoves. Mr. Bain grows it in a large pot in warm greenhouse temperature, and it thrives almost as well under these circumstances as planted out on the edge of a tank, as it is, at Pendell Court. The Burford Lodge plant is some 6 ft. or 8 ft. high, clothed with ample healthy foliage, and bearing several fine heads of long drooping flowers of a rich crimson colour. It is a most distinct and beautiful plant, and we predict for it a brilliant future. We intend to give a coloured illustration of this plant shortly.

ANTHURUM ORNATUM.—This handsome plant, we fear, is somewhat undeservedly neglected, probably because it is not so showy as *A. Andreanum* or the Flamingo plant. When in flower, however, it is quite distinct from most others of the cultivated kinds. It has broad ample foliage, produced in a tuft, from which rise the tall flower-stems, terminated by a broad and long snowy white spathe and a purplish spadix. It is agreeably scented, and remains in perfection a long time. In Sir Trevor Lawrence's garden at Burford Lodge, Dorking, in which such a wealth of beautiful plant life is represented, it is now finely in bloom, as is also *A. Andreanum*, the two forming a wide contrast as regards the colours of the inflorescence.

THE INDOOR GARDEN.

WINTER-FLOWERING BEGONIAS.

NOW when the tuberous rooted or summer flowering Begonias have, like the zonal *Pelargoniums* and some other families of plants, been so greatly improved as almost to preclude further advance, attention might be turned to the various winter-flowering species which would doubtless be improved by being crossed with some of the richly coloured summer-flowering varieties. Little difficulty need be apprehended in effecting a blending of the tuberous rooted section with such species as *B. manicata*, *B. insignis*, *B. Saundersi*, *B. semperflorens*, *B. Lucilie*, *B. Digsweiliana*, *B. Welltonensis*, &c., most of which have rather small and pale pink flowers, all, however, being exceedingly useful as winter-flowering plants, requiring the temperature of a warm greenhouse, or that of a structure intermediate between an ordinary greenhouse and a plant stove. The first named species, viz., *B. manicata*, is one of the most beautiful of winter-flowering plants, producing in the depth of winter quite a cloud of pretty delicate pink flowers, borne on stout foot-stalks well above the foliage, and which remain for a long time in good condition, while the foliage is also singularly ornamental, and the habit of the plant compact and good. *B. insignis* is also a useful winter-flowering plant, although more straggling in its habit of growth. But from all the species mentioned, as well as from others, it is possible that varieties may be obtained richer in colour and improved in habit, and that would at the same time bloom in winter.

A difficulty, it is true, may be experienced in inducing winter and summer flowering kinds to bloom simultaneously, but this difficulty can be easily surmounted by preserving the pollen of either section in tissue paper, or otherwise, so as to exclude it from the action of the air; so preserved it will be found to retain its vitality for almost any length of time, and can be applied to the stigmas of the intended seed-bearing plants when they are in proper condition to receive it. This should be done with a soft brush or camel's hair pencil, and the blossoms so operated upon should be carefully marked. The seed, which is exceedingly small, may be sown when ripe in a pot of light soil, consisting, say, of equal parts of loam and peat, or leaf-mould. The surface should be made smooth and level, and then watered with a fine rose. After the water has been absorbed the seed should be sown upon the moist surface gently pressed into the soil, and the surface of the pot should be covered with a pane of glass, which should be allowed to remain on until the seeds have fairly vegetated. When sufficiently large the plants should be pricked into seed-pans and afterwards potted singly in small pots and kept in a growing temperature, similar to that in which they have been raised, which ought to have been some 65° or not under 60°. As soon as the young plants have flowered or given sufficient indications of their habit of growth, &c., a selection of the best can be made. P. GRIEVE.

Resting Eucharis amazonica.—I have read with considerable interest Mr. Miller's note respecting this plant (p. 596), and while agreeing with him on most points, I must take exception to the "green and growing system" as stated by him. I find from experience that the *Eucharis*, in common with all other bulbs, requires and takes, whether we will or not, a certain amount of rest. I do not by this term mean to imply that the bulb should at any time be dried off to the injury of the existing foliage, but I do mean to say that there is a time, after the foliage has become fully developed, and before the bloom appears, during which the process of resting or ripening goes on. The same remark applies to *Pancratiums*, *Griffinias*, and all bulbs which we may call evergreen. I have several large pots of *Eucharis* in and coming into flower, and I certainly attribute the strength and number of the spikes to the rest the bulbs received last

summer, when growth had ceased and the foliage had assumed the dark green tint and tough texture which denote maturity. My plants receive a certain amount of atmospheric moisture at all times. A considerable portion of my stove being occupied by Ferns, I must of necessity maintain a humid atmosphere, yet I have never noticed any bad effect of it on the bulbs.—THOMAS SHAW, *The Gardens, Riverston, Nenagh.*

Poinsettias in a cut state.—One point in reference to these seems to have been overlooked, and that is their lasting properties in water. No flower remains longer fresh and beautiful when cut and put in water than Poinsettias. All other kinds of flowers which we use in glasses have to be renewed every week or oftener, but the Poinsettias last for a fortnight or longer, an advantage well worth bearing in mind.—J. MUR.

Camellias shedding their buds.—What is the cause of this? I have several plants planted out in two beds in the centre of the conservatory. They made good growth, set plenty of buds, but just as they ought to flower many of them drop off. The beds are well drained, and the soil loam, peat, and some charcoal. I have growing on the surface a thick mass of *Selaginella denticulata*. Will that affect them? They have been well watered. The only cause I can think of is there is some scale on the plants. Would that affect the buds?—Z.

Asparagus plumosus.—We have received from a northern correspondent a rooted cutting of this plant to show that what was stated in THE GARDEN lately in reference to striking this *Asparagus* from cuttings was correct. The cutting in question, the top of a shoot some 5 in. long, was put in six weeks ago, and is well rooted, the longest being nearly 3 in. in length. It will therefore be seen that plants of this handsome *Asparagus* can be readily obtained in this way.

Camellia buds dropping.—Is it general for small plants of the old double white and fimbriata *Camellias* in 6-in. pots to drop their buds when on the point of opening? I have had considerable experience with *Camellias*, and never found any difficulty with large specimens of either sort named, but year after year they fail with me in small pots. Plants the same size of *Mathotiana alba* and other whites bloom well, as also do many coloured varieties. To my thinking, nothing looks prettier in a small vase in winter than a small well-grown healthy *Camellia*.—A MANCHESTER GARDENER.

Cape Pelargoniums.—Eclipsed though these are by the zonal varieties, some of them are nevertheless remarkably pretty, and they produce their flowers during winter just as freely as the zonals if in the same temperature. The secret, if secret there be, in getting them to flower well at this season is to grow them freely during summer, and in autumn rest them for a time, giving them plenty of air and but little water. So treated when started in a gentle heat these *Pelargoniums* will flower all through the winter. The best varieties are *Ariel*, rose crimson with dark blotch; *Beauty*, a very bright flower, rather lighter in colour than the foregoing; *Compactum* multiflorum, bright pink; and *Echinatum*, pure white with crimson blotch.—H. P.

Large-crested Poinsettias.—I had some heads of Poinsettia last year which measured 22 in. in diameter, and have some now not fully developed which are 17½ in. across. I grow them as follows: In April the plants are cut down to within 8 in. or 10 in. of the ground; they are then kept dry and stored away in a corner of a cool house, where they remain until July; then they are started, and when the shoots have made 5 in. or 6 in. of growth they are repotted in a mixture of peat, leaf-mould, silver sand, and loam. Plenty of crocks are put into the pots to ensure good drainage. Then they are placed in the stove, and liberally supplied with water. When the bracts are commencing to change colour the plants are top-dressed with any good, well-rotted manure,

and liquid manure is given them twice a week.—G. A. PASSINGHAM, *Milton.*

Clerodendron Balfouri.—I see successful batches recommended in order to have flowers of this all the year round, no doubt the best plan with plants in pots, but by planting out in a tub, and giving it room, one plant will supply flowers for at least six months of the year. A two or three-year-old plant here that the knife has never, with one exception, touched, except to cut the flowers, has about 700 ft. of wood on it, and is trained like a horizontal Pear tree. If the wall it is on had been high enough it would have made a perfect fan 30 ft. wide at the base and 30 ft. high from the pot. It flowers long and profusely every year down to the pot. About 200 ft. of wood was removed lately that room could not be found for, not in the way of pruning.—J. S. W.

Two dark Chrysanthemums.—One of the most striking Japanese *Chrysanthemums* I saw last autumn was *Père Delaux*, a kind that is not to be confounded with *Mons. Delaux*, although the similarity might lead to such mistake. *Père Delaux* was exhibited by Mr. Strong, of Kenwold Court Gardens, Virginia Water, in splendid form at Richmond, and it was universally admired. It is one of the darkest Japanese we have. I can only describe it as crimson-bronze in colour, of good form, and a first-class flower. It will probably be classed with the medium-petalled varieties. Perhaps the best dark incurved flower we have is *Inner Temple*. This, too, was well shown at Richmond by Mr. Molyneux, of Swanmore Park, whilst in colour it is almost as deep as *Julia Lagravère*. It is a fine flower, quite of first-class form and density, and makes a strong point wherever shown. The two flowers, being the darkest of their kind, should be universally grown.—A. D.

Winter-blooming Pelargoniums.—Allow me to inform "A Manchester Gardener" (p. 626) that with careful preparation through the summer I have found the following named sorts, with a number of others, to bloom well during the winter, viz.—*Scarleta*: John Gibbons, Aphrodite, Colonel Holden, H. R. Clifton, Masterpiece, Rev. F. Atkins, Dell, Bignolito, Right-ahead. *Salmon*: Madame Jean Sisley. *Pink*: Lady Byron and Lady Emily. The under-named doubles bloom fairly well with me: Ernest Louth, Le Bronze, Dr. Jacoby, and Amelia Baltet. Although I do not grow so many of these as the singles, I have had plants in 6-in. pots with nine trusses to a plant, and not small trusses either, from which I have been cutting freely since the end of September.—W. SLOCROVE, *Gatton.*

—The following do well with me, viz.—*Single*: Vesuvius, White Vesuvius, Master Christine, Leviathan, King of the Bedders, Louis Veillott, Drapeau Tricolor, Pioneer, Lady Emily, Mr. Parker, Madame D. Bertrand, and Salathiel. *Doubles*: Wonderful, Madame Thibaut, M. G. Lowagie, Denfert Rochereau, Aglaia, and C. H. Wagner.—J. KING, *Wray Park, Reigate.*

—I have a collection consisting of thirty sorts in our conservatory, with over 200 trusses of bloom on them. Amongst these the following are the best, all points considered—*Pink*: Mrs. Kent, Mrs. Leavers, Lucy Bosworth, and Lady Sheffield. *Purple*: Dr. Tom Denny, Irene, and Mary Pearson. *Scarlet*: Vesuvius, Harry King, Laurence Hayward, Coleshill, Sir H. S. Stanhope, Mr. Gladstone, Rev. J. Atkinson, and New Life. As a white, *White Vesuvius* is perfection. *Doubles*: To those named by your correspondent I may add Smith's Wonderful, Vesta, Madame Thibaut, and Simon Deleaux. *Candidissimum* fl.-pl. is the purest white I have grown as yet. All the above I have selected for winter work from a collection of upwards of 100 sorts, new and old.—J. C., *Farnborough.*

—From amongst 300 plants, comprising about 100 varieties, I have selected the following twelve single and six double varieties as being good winter bloomers, viz., *Single*—Lizzie Brooks, Iago, Henri Jacoby, Guinea, Edward Sutton, Mrs.

Fenn, Glow, Cannell's New Life, Louisa, Gloire de Corbunay, White Vesuvius, Haidée. *Double*—M. Plasancon, Brantes, Madame Thibaut, M. Pasteur, Candidissimum plenum, and Madame Veuve Pomery.—ED. BARTON, *Beech Hill, Cork.*

Pine Adiantum farleyense.—I send you a photograph of a plant grown in what may be termed an intermediate house, thus showing that this Fern can be grown well without a stove which is so often used for it. The house in question is not syringed at all. We find this Maiden-hair to grow well in half loam and half rotten leaf-mould with a little peat and sand. When well rooted we water it well with guano water once a week at the rate of half an ounce to the gallon. We have also growing in the same house a plant of *Adiantum tenerum* which measures 15 ft. in circumference. In the same house we also grow *Gloxinias*, *Achimenes*, *Tydzas*, *Poinsettias*, *Cyclamens*, and *Justicias*; also *Anthuriums*, which yield flowers nearly the whole year round, thus associating Ferns and flowers intimately together.—JOHN HARDING, *The Plantation, Bedford.* [A graceful and remarkably fine specimen of *Adiantum farleyense*, measuring 31 in. in diameter and 7 ft. 6 in. in circumference.]

Poinsettias.—The following is a good and simple way to grow Poinsettias: Start the old plants in May, and from these you can take cuttings during June and July. Insert one cutting in a 3-in. pot, and as soil use two-thirds loam, and one of leaf-mould, with a good allowance of sand. Then place them in a propagating pit as near the glass as possible, and shade them carefully for a few days: afterwards gradually expose them to the full rays of the sun and air; repeat when needful in 5-in. pots and 6-in. pots, using two-thirds loam, one of old Mushroom manure, a good dressing of coarse road sand and charcoal, with a little bone dust. Keep them rather close for a few days till the plants have become somewhat established, after which gradually harden them off, and plunge them in a cold frame not far from the glass. Give plenty of air on all favourable occasions, a good syringing after a fine day, and be careful not to let them get dry at the roots. About the end of September place them in a warm house, and in a few weeks they will commence forming their beautiful bracts. I have sometimes potted one-year-old plants in 7-in. pots after taking cuttings from them, and from these I have cut two or three bracts measuring from 18 in. to 22 in. in diameter. Store the old plants anywhere in a temperature between 40° and 50°, just giving them sufficient water to keep them from shrivelling.—THOS. BUCKERFIELD, *Shirburn, Ozon.*

SHORT NOTES—INDOOR GARDEN.

Anthurium Andreanum.—This was blooming well the other day in the stoves at The Dell. Also one or two other *Anthuriums*, amongst which *Veitchi* had leaves over 3 ft. long, and *A. crystallinum* was not less beautiful. *Jasminum gracillimum* and many other plants were also equally well grown.—J. CROOK, *Farnborough.*

Rhododendron Princess Alexandra.—The flowers of this pretty greenhouse *Rhododendron* more nearly approach *jasminiflorum* than those of any of the others, but they are larger and much stouter, and slightly suffused with pink. In habit the plant is, however, altogether different; it is one of the strongest growers in the section to which it belongs, and also one of the oldest.—H. P.

Chrysanthemums.—"Anonyma" asks (p. 614) where four varieties, viz., *Rosa Bonheur*, *Flambeau*, *Siratum perfectum*, and *Marie Crozat*, mentioned by me, are to be obtained. I reply, at the Amhurst Nursery, Hackney, and in some of the nurseries in the King's Road, Chelsea.—H. P.

Tuberose culture.—I have received and potted a batch of *Tuberoses*: will someone kindly tell me how to treat them; when I may expect them to flower? and also what I must do with them afterwards? I hear *Tuberoses* are difficult to manage. I am also going to plant *Gardenias* in a warm pit: would they do in good loam? or must I get some peat?—SUBSCRIBER.

NOTES AND READINGS.

A good deal has been said for and against Pearson's Golden Queen Grape. Those who say it is equal to the Muscat of Alexandria in any respect except fertility must have compared it with a very second-rate example of the latter or *vice versa*. Golden Queen is without doubt one of the most vigorous, and perhaps quite the most extraordinary bearer of any Grape in existence; but it is second-rate both in appearance and quality, and never acquires the transparent amber hue of the Muscat, growing dingy and dull as it gets ripe. It is in no sense "golden."

Correspondents have lately been asking in a contemporary why the South Kensington Committee awards certificates to second-class Potatoes as such, and I daresay a good many people are wondering on what principle such awards are bestowed. There is surely no such scarcity of Potatoes that second-rate ones should be certificated, but it must be admitted, nevertheless, that many Potatoes deserve culture that are not of excellent eating quality, and may be the committee is sometimes influenced by such considerations. Potatoes could be named that are excellent for table use, only poor croppers, and *vice versa*. No one will maintain, for example, that either the Scotch Champion or Sutton's Flourball are first-class Potatoes for the table, but they are good to grow for food supply. In judging the quality of any variety, an all-round view of its merits should be taken. As it is, a mere certificate of merit is never sufficient to do more than procure a trial for any new variety, and ultimately its real merits will be settled by the public, who are the best "committee" after all.

A controversy has been going on in one of your contemporaries among several very good gardeners on the subject of "theories in Vine culture," which is exceedingly instructive, as showing how intelligent practitioners are all at sixes and sevens on the cause of the production of roots. Vegetable physiology and the scientific committee do not seem to have thrown the least light on the subject, and practical men have ascribed the production or, as some would call it, the multiplication of roots to quite a number of causes—to a poor soil, a rich soil, a hard soil, a soft soil, an open soil, a close soil, and a stony soil, and the particular actions of each and all in the matter have been accurately set forth and described. Could not "Chiswick" settle a small matter like this in two or three weeks. The question at issue is Vines. If Mr. Barron would have the goodness to pot half-a-dozen or a dozen Vines in two or three different composts at this season, and treat all alike at the top, he could settle the matter finally by midsummer. No single gardener's experience in a private place will be believed, and it is pretty clear that those who write casually on the subject are only speculating. To encourage root-action is a great point with all intelligent fruit growers. How can they best accomplish that end?

If "improvements" in boilers could accomplish all that is claimed for them, we should have been heating our hothouses without fuel by this time, but improvements have almost reached their climax, and I think no system of heating will be truly economical that does not combine the flue with the hot-water system. Out of every pound of coal burned now, one-half of the heat goes up the chimney without helping to heat the structure. Of the heat distributed by the pipes in the right place most of it is also lost

through careless ventilation and other causes. One has only to note the quantity of heat, not to speak of unconsumed fuel, that passes up a stove-hole chimney under active firing to gain an idea of the enormous loss incurred. Hot-water pipes afford the safest and best means of heating doubtless, but who will venture to say they are the cheapest? It is time we were using our chimneys as well as boilers and pipes for heating instead of as a means only of carrying away the unburnt smoke.

One way of doing this which we have seen carried out successfully in some places consists in carrying the flue along the back wall of the house, and it may easily be made to traverse the wall two or three times if desired, and in numbers of cases, too, it is quite possible to make a flue of the low front wall as well, thus taking the flue quite round the house. In former times the fault of flues lay in their danger of bursting, but any one can see how a furnace can now be fired so as not to heat any part of the walls near plants dangerously, and with sanitary or earthenware pipes as now made there should be no difficulty in forming a safe flue inside a brick wall. Houses treated in this way would lessen the need for the double boiler system, for the stoker would then always have two strings to his bow in an emergency, and at all times that bane of early forcing—very hot pipes—would be greatly modified. I am acquainted with plenty of recently built houses where this combination system could have been carried out perfectly well, and without much, if any, additional cost. In some houses which I have seen in which the flue was taken backwards and forwards along the back wall, with pigeon holes above each flue to afford greater radiation, it is found that the pipes have never to be made nearly so hot as they have to be in similar houses solely dependent on the pipes alone.

With the exception of a few days before Christmas, we have had few autumns and winters so mild or agreeable as the present. During the whole of this Christmas the weather in many places, north to south, has simply been delightful, the sun shining every day, and the nights mild and agreeable, the thermometer ranging from 40° to 45°. According to the *Daily News*, the winter of 1868-69, preceded and followed by fine summers, was the mildest for the past thirty years, vegetation being in a very advanced stage in January. Vegetables and herbaceous subjects continue to grow and make unwonted progress for the time of the year, but there appears to be no decided move on the part of fruit trees, which is satisfactory for an early spring, rarely presages a fruitful summer. In winters like the present a well-kept lawn affords great satisfaction. In order to have a lawn green and fresh in winter, it must be kept closely shaven, and the sod should lie upon a good, deep, and rich soil—the two essentials of a green sward in winter.

"A. D.," to whom readers are frequently indebted for sensible and practical suggestions, laments the dearth of gardening books, and asks if they cannot be cheapened, to bring them within the reach of a greater multitude. Many a poor, but aspiring gardener will have reason to thank "A. D." if his suggestions should lead to the end desired. Mrs. Brassey has set an example in this direction by publishing her "Voyage of the 'Sunbeam'" at 6d., and Captain Burnaby is imitating the example by issuing his "Rideto Kihira," which has already remunerated his publishers so well, at the same price. Can horticultural books not be published in the same manner? Of all educational works, those on gardening are the dearest,

if we except *Gardening Illustrated*, the first horticultural periodical that has ever appeared on the news-vendors' tables in piles. If any paper is likely to affect the weeklies of the horticultural class it is this penny one; as for the monthlies, they are not a success, it is well known, and one is lately dead. PEREGRINE.

Retirement of Mr. Thomas Moore.—The result of an invitation forwarded to certain friends of Mr. Thomas Moore was a largely attended meeting in the Council Room of the Royal Horticultural Society on the 13th of December last. The proposal to offer to Mr. Moore on his retirement "some definite tribute of personal and public regard" met with a reception at once unanimous and enthusiastic. After suitable deliberations, it was resolved that Mr. Moore's eminent and long continued services to horticulture and botany, and his disinterested devotion to social and philanthropic matters in connection with them, might be most appropriately acknowledged by an elegant presentation at a public dinner. In respect to matters of detail it was thought advisable to defer consideration of the date and place of the presentation, but it was unanimously agreed that a substantial service of plate would be the most suitable for the occasion. A committee has been formed, consisting of those present at the meeting (with power to add to their number), and a subscription list opened, the amounts ranging from £5 5s. to £1 1s. It is the general wish of the promoters that the subscription list should be as general as the occasion demands, and should be completed as quickly and as liberally as possible in order that the presentation may take place early this year. It is desired, therefore, that intending subscribers communicate at once either to the treasurer, Mr. William Paul, Waltham Cross, N., or the secretary, Mr. Shirley Hibberd, 15, Brownwood Park, Stoke Newington, naming the amounts of their subscriptions.

Bolled bones.—Can anyone tell me what percentage of manual phosphate is lost in the process of boiling crushed bones?—READER.

Erasmus Himalayas.—This is said (p. 637) to have been grown in a glass house. It should have been a glazed pit.—H. HARPU CREWE.

Water-side planting.—I am connected with a firm that owns a sheet of water of about 100 acres, situated at Ecpp, near Harewood, and we purpose planting with trees and shrubs various parts around the water for protection and ornament. Would some one, therefore, be kind enough to furnish me with a list of such trees and shrubs as would be most suitable for the purpose I have just named?—W. S. H.

Naming plants and fruits.—Four plants, fruits, or flowers only can be named at one time, and this only when good specimens are sent. Readers who desire our help in naming Apples or Pears will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

Names of plants.—*G. T. W.*—1, *Platynerium alceiroides*; 2, *Pteris cretica albo-lineata*; 3, *Adiantum tenerum*; 4, *A. concinnum*.—*J. D.*—*Lycaste Skinneri*.—*Rosecr.*—1, *Linum trigynum*; 2, *Sericopogon Giesbreghiana*; 3, *Browallia elata*; 4, *Pteris scaberula*.—*W. Watson*.—Apparently *Sibba sempervirens*.—*Miss M.*, *Perth*.—1, *Lomaria gibba*; 2, *Asplenium bulbiferum*; 3, *Polypodium vulgare canbriacum* (hardy).—*W. A. T.*—The large plant is a species of *Eupatorium*; the other, *Amnemon sulphurea*.

COMMUNICATIONS RECEIVED.

G. L. M.—S. H.—W. L. T. W. J. M.—W. T.—P. G.—Visitor. *J. G.*—G. H. W. W.—W. J. S. W.—R. T.—*J. C. G.*—C. E. H.—H. S.—D. W. G.—J. S. W.—*E. J. L.*—Constant Reader. *C. F. D.*—D. G.—W. G.—*J. D.*—W. C.—H. H.—C. R.—G. H.—D. E.—T. C.—*J. G. J.*—*J. W. S.*—W. C.—D. T.—J. G.—P. J.—*E. D.*—*T. D. H.*—H. R.—W. W.—A. S.—A. M. G.—B. B. S.—*C. R. S.*—*J. A.*—C. S.—J. K.—A. D.—W. J. M.—T. S.—*W. P. T.*—D. H.—D. F.—F. W. T.—C. B.—F. G.—A. K.—*E. M.*—C. B.—J. S. W.—L. B.—T. S.—F. W. M.—T. S.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

BERRY-BEARING TREES AND SHRUBS.

Cotoneaster Hookeri (*buxifolia*) is to my mind the best of the *Cotoneasters*; now after the birds have taken every berry from the generally popular *C. Simonsi*, *C. Hookeri* is radiantly beautiful, the berries being borne in great profusion, of a good size, and of a deep glossy crimson-scarlet. I looked over a large number of *C. Simonsi* to-day, and could not find one perfect berry; in fact there has not been any for a month or more. Another most telling and excellent small tree is *C. bacillaris*; it grows 30ft. or so high, and the branches are borne down with the profusion of its ebony-black berries, which are of large size, and remain on long after the leaves have fallen. Suitably placed, this has quite a unique effect. Two other good berry-bearing shrubs are *Viburnum dentatum* and *davuricum*, both being somewhat similar in appearance; their upper surfaces bristle with a profusion of blue-black berries, which, like those of the *Cotoneaster* just alluded to, remain on long after the leaves have fallen. I have seen the *Laurostictus* quite handsome with its purplish fruit, but of late years its reputation for hardness has suffered so much that we cannot recommend it. The chief value of an ornamental shrub or tree, whether berry-bearing or otherwise, consists in its lasting properties. I have latterly lost much of my faith in the Mountain Ash as a pictorial tree, its season being so short in ordinary positions. The birds commence to eat the berries the moment they are ripe. I once thought I had discovered a form of this tree with persistent berries, as when I saw it in the end of December not a berry had been removed, but I afterwards found out (it grew close to a house) that a gun was kept there. The short-season failing applies with equal force to all forms of *Berberis*, though *B. communis* lasts for several weeks, and is very charming while it lasts. We cannot, however, claim much decorative value for any member of the family on the score of their fruit, which is generally tasty; this the birds know, and attack them one after the other as they come in. The Mountain Ash has a dangerous rival in *Cotoneaster frigida*. This grows to a good-sized tree, is quite sub-evergreen, and the berries—bright red—very persistent; in fact, they remain on all the winter. If we could hit upon some plan to make berries distasteful to the birds, it would, I expect, be largely adopted; berries play such an important part in autumn and winter decoration that their preservation by any method is a matter of much moment. Pending this discovery, making a selection of berry-bearing trees having the longest season is the next best thing to do, and *Cotoneaster Hookeri* will be found to be one of the brightest and most lasting of all.

Neury.

T. SMITH.

HINT TO MUSHROOM GROWERS.

MUSHROOM beds when not on the ground or floor are usually, perhaps, almost invariably made up on a close bottom formed of brick arches or of stone, slate, or timber slabs. I have long been of opinion that the produce of our beds would often be considerably increased were raised beds made on a bottom of open iron gratings; a part of our beds are so made, and we gather a fair crop of Mushrooms from the under side quite equal in quality, except that

some are a little malformed, to those produced on the upper surface of the bed. We find the ordinary or surface crop quite as good on beds made on gratings as are those on a close bottom of timber or slate. I have gathered good Mushrooms on the under side of 4½-in. thick brick arches. Where gratings are at hand and can be conveniently used I would venture to recommend their use. The spawn works through the whole mass of the bed if the manure is in proper condition, but, as a matter of course, where the beds are on a close bottom no Mushrooms can grow except on the surface. J. E.

ORCHIDS AT BURFORD LODGE, DORKING.

In such a rich collection of Orchids as that possessed by Sir Trevor Lawrence there is at all seasons a considerable display of bloom, but it is now and for the next three or four months that the collection is at its best. At the present time there are scores of distinct species and varieties in bloom of the commoner kinds, besides choice things that one always expects to find here. The cool-house Orchids are most numerous, particularly the *Odontoglossums*, of which there are about a score of species in flower. The lovely *O. crispum* is, of course, represented very numerous, and in a splendid manner too, some of the varieties being unique in size, form, and colouring, the long arching flower-spikes of this Orchid giving it a fairy-like grace, different from that possessed by any other Orchid. Of such kinds as *O. Rossi* there is a rich variety of forms; and associated with these are *Andersonianum*, *triumphans*, *gloriosum*, *nebulosum*, *maculatum*, *cordatum*, and the pretty *O. crocidipterum*, which reminds one of *O. gloriosum*, except that the flowers are smaller and more copiously spotted. The choicest of all the *Odontoglossums* in flower was

O. hebraicum, a most handsome species, very rare. This particular plant, too, represented by far the finest form we have yet seen, the flowers being 4 in. across, of a yellowish ground, and conspicuously marked with copious hieroglyphic blotches of a reddish chestnut hue. This reminds one somewhat of *O. Andersonianum*, but is a distinct and finer plant.

Dendrobis of various kinds were in bloom, notably *D. crassinode* and an extremely fine variety of it called *Barberianum*, which has the tips of the petals and sepals of an intense violet-purple much deeper than that of the ordinary form. We also noticed some glorious plants of *D. Wardianum* with long wreaths of blooms; also of *D. primulinum giganteum* with stout bulbs laden with flower, and hanging over the rim of the suspended pots. The delicious perfume of *D. heterocarpum* pervades the house, though not so showy as many others. *D. aureum* is said to be inferior to this, but there is not much difference, at least so far as our observation goes.

Lady's Slippers (*Cypripediums*) were numerous, among the most noteworthy being *C. Haynaldianum*, a rare species from the Philippines, much in the way of *C. Lowi*; indeed, it is often at first sight mistaken for that plant, but the colours and markings are more conspicuous, and it is, we consider, superior to *C. Lowi*. A fine form of the old *C. villosum* with unusually large flowers was noteworthy, as were also the charming little *C. concolor*, *C. venustum*, with eighteen bloom; *C. nuytium*, *Boxalli*, *Harrisianum*, and the old *C. insigne*, of which there is a wonderful example in a huge pot bearing some scores or even hundreds of flowers, forming a head 4 ft. or 5 ft. across. Of *C. insigne* Maulei there is also a grand specimen,

representing this handsome variety in its true character. Many inferior forms pass for Maule's variety that are not to be compared with the true plant, which has the upper sepal nearly half pure white. The variety *C. insigne albormarginatum*, which we recently alluded to as in bloom in another collection, is also a very handsome and distinct variety, as good as the ordinary form of *C. Maulei*. Its characteristic is the white running down three parts of the length of the dorsal sepal.

The Mexican house is very gay, there being quite a thicket of flower-spikes on *L. anceps*, *L. autumnalis*, and *L. albida*, with their varieties, all intermixed in a charming manner. The *Barkerias*, especially *B. Lindleyana*, are extremely attractive, the brilliant violet-purple of the latter being particularly so. Adjoining the Mexican house is the *Phalenopsis* house, which is likewise gay with flowers, chiefly of *P. Schilleriana grandiflora* and *amabilis*, though of choice kinds *P. intermedia* Portei, with its pure white sepals and petals and rosy-pink labellum, is a lovely plant. There will shortly be a fine display in this house, judging by the number of spikes being developed, one of which on *P. Luddemanniana*, is about 2 ft. or 3 ft. long.

Sophronitis purpurea is a remarkable and very charming plant. It is in the way of *S. grandiflora*, but the bulbs are shorter and the flowers, though quite as large, of a decided purple hue. Of *S. grandiflora* there are some brilliant masses in bloom which light up the whole house. *S. violacea*, a pretty species with small flowers, is likewise in flower.

Vanda tricolor Russellii is one of the grandest plants in the collection. It is some 5 ft. high, and from its stately growth bears several spikes of bloom, which individually are finer than any other form of the species, and the colours much more attractive. Of the finest variety of *V. cœrulea*, the one with the deepest blue flowers, there is still a grand example in flower. The rare *V. Goweri* promises to flower shortly; also *V. Cathcarti*, the latter with some nine or ten flower-spikes on one plant.

Among other Orchids may be mentioned as particularly noteworthy *Cymbidium Mastersi*, a huge specimen in a bushel pot. This has borne a large number of spikes this year, and when in perfection is in itself quite an exhibition. *Zygopetalum rostratum* is a remarkable species, distinct from all the rest on account of its unusually fine white labellum. It is finely in flower. *Limatodes rosea*, one of the parents of *Calanthe Veitchii*, is among the loveliest of Orchids. It has erect flower-spikes 1 ft. or more high, and rosy pink blossoms like its progeny. With the *Calanthes* it makes a beautiful display. A list of all in flower would be a long one, but we cannot refrain from mentioning the following as being specially noteworthy, viz.: *Cattleya maxima*, *Nanodes Medusa*, *Masdevallia macrura*, *Oxidaria lepidota*, *Epidendrum Wallisi*, *Oncidium cucullatum giganteum* (particularly fine), *O. cheiroporum*, *Pescatorea Roelzi*, *Huntleya Melegreis*, *Bollea celestis*, and *Neottia picta*, the latter a brilliant flesh-coloured Orchid with handsome mottled foliage. It is terrestrial, and deserves far more extended knowledge than it now enjoys. W. G.

Varieties of Lady's Slippers.—Some interesting forms of these come from Mr. Burbridge, more particularly to show that a similar relation exists between *C. Boxalli* and *C. villosum* as between the ordinary *C. insigne* and Maulei. The superiority of the latter is now recognised, and the difference is all the more apparent if a poor variety of *C. insigne* be compared with the finest form of Maule's variety, for it is important to know that there are several forms. *C.*

Boxalli is a handsome species, the flowers of which have more numerous and more pronounced markings than those of *C. villosum*, though like them they appear as if varnished on the surface. There is a strong similarity in other points, but nevertheless both are well worth growing.

Cypripedium insigne.—I have been told that this Lady's Slipper should be potted when it has completed its growth. When is this? after or before flowering? When is the resting time of the plant? It appears to me to be growing all the year round. Is it desirable to divide large plants of *C. insigne*?—A. J.

Fine varieties of Odontoglossum.—Some uncommonly fine forms of *Odontoglossum* come to us from Mr. W. Bull, of the King's Road, Chelsea. They include three of *O. crispum* (Alexandra), one of which has unusually long tapering sepals, particularly the upper one, which is flushed with a tinge of rosy purple extending $1\frac{1}{2}$ in. above the column. The petals are broad, beautifully crisp, as is also the lip, which is marked with a conspicuous golden crest. Another is similar, but more suffused with purple, while the third—the most striking of all—is remarkable for its exquisitely beautiful markings. The sepals are white, heavily blotched with purple; the broad and crisp-margined petals are copiously freckled and spotted with tiny dots of purplish rose. The lip also is abundantly freckled, and the golden crest very pronounced. Of *O. Rossi majus* there is a splendid form having a large broad lip and well-defined chestnut-red markings on the sepals; likewise of *O. Andersonianum*, which represents the choicest form of that exceedingly handsome Orchid.

EDITOR'S TABLE.

SCILLA PRÆCOX.—Like *S. sibirica*, but earlier; still only a form of that brave spring flower. Either or both are admirable for those who know how to use them. To what extent is it possible to get a sprinkling of the Siberian *Scilla* on a bank of short grass? I mean so that it may be let alone and may multiply.

HELLEBORUS ACHASICUS.—This, the finest of the coloured Hellebores, comes fresh and bold and large from Mr. Kingsmill. The flowers measure a little over 3 in. across, and the dark red buds are very pretty. A noble plant established in strong tufts or as a small colony on sheltered grassy bank, or in the corners of a fringe of choice shrubs.

THE NEW ZEALAND CLEMATIS (*C. indivisa lobata*) is a precious plant at this season, as when allowed it fills a greenhouse with its pretty white flowers. Free as many climbers are, this seems to surpass most in its dense and effective bloom, and it is a free grower too. From Mr. Nield, of Wythamshawe, who praises it as a winter-flowering plant, and says it has a very graceful appearance hanging from the roof of a conservatory.

ANEMONE FULGENS (the scarlet Windflower), wonderfully fine and numerous from Miss Owen—a surprising batch of this brilliant hardy flower for the time of year (Jan. 10). The flowers seem smaller than usual, owing, no doubt, to so early a start when there is not sun enough. But they are vivid in their scarlet, even after the journey from Gorey. With such a flower alone a pleasant country garden would be gay in spring.

GREENHOUSE DAISIES.—One of the most tender and pretty bunches of flowers one could see composed of blossoms to which the above name may well be given. They are the old single Cinc-

caria, the small flowered Paris Daisy, and the pretty blue *Agathaea*, all flowers easily grown in a greenhouse. Together in a bunch they remind one of the innocence of blossoming turf in the early summer, where the Daisies have many rivals. From Mr. Cannell.

SELAGINELLA BROWN.—A beautiful deep green Club Moss which Mr. T. Smith says has proved hardy at Newry. In that case it would be admirable for the forming of a short turf on the rock garden or the fernery. The stones of the fernery are too often bare! People will never know the full charms of either rock garden or fernery till the piles of nakedness are decently covered. There are many things to do this even without the aid of this bold-looking, though fairly deep green Moss.

ANEMONE STELLATA.—Mr. Archer-Hind gives deservedly great attention to Anemones, and the Riviera Star Anemone repays him by flowering in Devon at the same time it does in its native country. In old gardens generally it never was so much seen as the Poppy Anemone, nor is it likely to be, wanting, as it does, a warmer soil. All the more reason why, where the soil well suits it, the Star Anemone in some of its more distinct colours should be freely grown.

CROCUS IMPERATI.—A lovely early Crocus, showing well the exquisite contrast between buff and mauve on the outer side of the flower, which makes this Crocus so valuable among flowers that are all beautiful. It is to be hoped that the increase of the newer species of Crocus in our gardens may keep pace with the knowledge of them now being so well gathered and widely spread abroad by Mr. Maw. Nothing, however, can compensate for the want of the living beautiful things themselves.

EVERGREEN AND DECIDUOUS HELLEBORES.—A very interesting series of Christmas Roses comes from Mr. Archer-Hind, who enumerates them in two groups, the evergreens being *Helleborus orientalis*, *olympicus* (true), *olympicus major*, *atiquorum*, *lividescens*, *niger*, *atrorubens*, *achasicus albus*, *colchicus*, and hybrids of these. Those having non-persistent foliage are *H. odoratus*, *sambucodorus*, *pedatus*, *purpureus*, *dumetorum*, *torquatus*, *intermedius*, *cupreus*, and *angustifolius* Bocconi—a less important group.

CROCUSES FROM DEVON.—How lovely these are from Devon, where the flowers of some rare ones are larger than about London! Perhaps the most valuable of the early bloomers is *C. Imperati*, and so hardy and easily grown. It will prove a gem for the wild garden, growing freely in grassy places. *C. alatavis* is a very delicate-looking Crocus. *C. Sieberi* reminds one of the autumn-blooming *C. nudiflorus*, but is small. *C. biflorus strictus* is a delicate purple, and these are relieved by the splendid gold of *C. aureus*. From Mr. Archer-Hind.

CHRISTMAS ROSES FROM AYRSHIRE.—Clear and clean large blossoms reposing on fresh Ivy from Auchendrane with the following suggestive note: "The blooms are taken from old plants which are planted deep in very rich soil. The leaves are too large to send. I know it is the custom to set the crown of the plant well up in the air, which leads to the production of scrubby leaves and short-stalked flowers. The climate is very damp here, but the more it rains the finer are the blooms of this beautiful flower. I always soak the flowers in a basin of water, which makes them clean and fresh."—M. E. C.

THE CLOVE PINK.—This fringy purple Pink is as good it appears for its use as a forced plant as for the open border. Mr. Gifford sends us blooms from Tottenham. What is the record of this *Clove Pink*, which, it is almost needless to say, has nothing to do with the Carnations that bear that name? I have been very much interested in a communication from Messrs. Dickson stating that what has lately been talked of as a novelty, the Painted Lady Carnation, represents an old and forgotten class which must have been a beautiful one.

ROMAN HYACINTHS.—When cross breeding has accomplished its present purpose and given us flowers stiff as flowers may be, it is well we have this fair bulbous flower, which is now much admired as a market plant. It seems a white form of the Oriental Hyacinth. Mr. Groom calls it "A gardener's friend for supplying cut flowers at a period when white is in great demand. If kept in heat the plants throw up many spikes, and if gathered in bunches like Lily of the Valley, with their own foliage, and dropped into a glass or vase, they are exquisite."

PURPLE SISYRINCHIUM.—The rich satiny puce bells of this come from the nurseries at Newry. An airy, fragile flower to be exposed to the chances of January! Nothing more worthy of a sheltered corner in a peat bed or any other favoured nook where the unique beauty of this fair early flower may be enjoyed. If it sprang from a carpet of some green, but slight-rooting dwarf plant or Moss (like *Selaginella helvetica* or *denticulata*, which are hardy in some places, at least) all the better. It is one of the fairest gems in a land of lovely annuals, bulbs, and great trees—Northern California.

A NOBLE LAPAGERIA.—Notwithstanding the many fine *Lapagerias* which, through the kindness of Mr. Salt and others, we have received, we really did not know the consummate beauty of form possessed by the plant till we saw a shoot grown at Gunton Park with leaves having such beauty of form and charm of light and shade, as to make one think of the noblest sculptured form or drapery! Then there are fifteen large flowers at the point of a shoot, but the surprise of the superb foliage makes them less thought of than usual. Mr. Allan writes: "The shoot has fifteen flowers fully expanded from three eyes or buds. With the flowers I have sent a shoot with leaves, showing the vigour of the plant. The leaves measure $7\frac{1}{2}$ in. by 4 in. The number of flowers and size of the leaves I have never seen equalled. I attribute my success to having made the peat bed on a concreted bottom, with drain pipes and plenty of drainage; the borders were also made piecemeal. Large peat beds made when the plants are small and first planted inevitably become decayed and sour before the roots get full possession of them."

DEVON FLOWERS.—I send two boxes of flowers, amongst which are *Crocus Imperati*, *C. aureus*, *C. alatavis*, *C. Sieberi*, *C. biflorus striatus*, *Trichonema Bulbocodium*, *Anemone coronaria*, *A. polypetalæ*, *A. multifida*, *Cyclamen Atkinsi*, *Scilla præcox*, *Bronze Pansy*, *Triteileia conspicua*, *T. iliciana*, *Coronilla glauca*, two kinds of *Snowberry* (*Symphoricarpos*) with pink fruit. Enclosed also are sprays of the dark-tinted *Rubia peregrina* and Ivy from the hedgebanks, which are very pretty. I would specially call your attention to an early bunch of *Anemone* which I call *multifida*, and another very handsome kind *polypetalæ*. The Hellebores are not what I could have wished to

send, but in this part of Devonshire (I do not know how it may be elsewhere) we have had a plague of mice and bank voles, which have destroyed the Hellebores by hundreds. I never knew them to do so until this season. They have also attacked the Anemones and Crocus, but that is not so unusual. The Crocus (species) have been very beautiful this year, and *Trichonema Bulbocodium* has been in flower for the last fortnight; also *Anemone blanda*.—T. H. ARCHER-HIND. [The Anemones first named are fine semi-double forms of the Poppy Anemone (*A. coronaria*). The interesting series of Hellebores sent with the above are alluded to separately.]

THE ROSE GARDEN.

Too vigorous growing Marechal Niel.—A Marechal Niel planted outside last March has quite covered the roof of my greenhouse; some of the shoots I have had to turn back, as they got to the top a month or two ago, but still they keep on growing. What am I to do under the circumstances? My fear is that if the shoots continue to grow they will deprive the dormant buds lower down the stem of the sap necessary to make blooms; then, again, this Rose does not seem to like a free use of the knife.—ALPHA.

Moss as a protection for outdoor Tea Roses.—Rose growers both in this and other localities have been so frightened by the havoc a zero temperature made in their collections last year that for a considerable time they have half their favourites "swathed" around with hay ropes, bracken fronds, or any other convenient protection they could find. Fortunately so far the mildness has been almost unprecedented, and has induced some Roses to prematurely show their buds, which must certainly come to grief if not well protected. I tried dry Moss for a few Roses last year, as I found it more easily procured, and under similar circumstances would ask any of your readers to give it a trial. I believe it the best of all frost resistants when tied on closely, and though a minor consideration handsome to look at when walking in the Rose garden.—W. J. M., Clonmel.

Something like a Rose.—On the front of our lodge here, there is a plant of La France Rose covering about 25 square ft. of space, which has had 885 blooms on it this summer. The first opened on June 6, and now, December 18th, there is a fully expended flower and several buds in various stages of development. It has scarcely ever been without a flower during the whole period, and many of the blooms have been perfect show flowers, so grand, in fact, as to arrest the attention and create the admiration of every passer-by. The occupier of the lodge being very fond of Roses, the plant no doubt has had many a bit and drop of good stuff, and much careful attention. The result is as above stated, and it is well worth recording, to show what may be done with a single plant, and also to suggest to those who may want a Rose on their cottages that they could not do better than plant a La France. There can be no sweeter, and few more beautiful Roses, while its perpetual blooming is a valuable fact, and not a fancy or a name merely, as is the case with so many other so-called perpetuals.—D. T. FISH.

The pedigree Roses.—I am sorry to have to give an unsatisfactory answer to Mr. S. F. Terwilliger in regard to these out-of-doors; they never seem to open freely, and indoors the complaint is generally that they lack that distinction of colour that gives value to Roses for cutting for bouquets, &c. So far they seem to have disappointed most people; probably, however, Mr. Bennett may have something to say about them. I have not yet seen any of them at flower shows nor anywhere else equal to any of our better classes of Teas, and yet I am one of those who expected great things from the pedigree Roses,

and wish to give Mr. Bennett credit for proceeding on definite rather than hap-hazard principles in the raising of Roses. Probably the lack of constitution and the comparative indefiniteness of colour that more or less characterise most of the pedigree Roses may yet be remedied from the same source. Many Roses as we have, there is yet room for thousands more sweeter, brighter, stronger, than those we already have. Constitution and fragrance should be the chief points desiderated in all new Roses. Has Mr. Bennett or any one else tried a cross between *Boule de Neige* and *La France* or *Niphetos* and *Duke of Edinburgh*, and with what results?—D. T. FISH.

TREES & SHRUBS.

TREES FOR WATERSIDE PLANTING.

IN answer to the question (p. 12) as to what kind of trees should be planted near water, allow me to say that I have found the following capable, when suitably grouped, of giving beautiful effects:—

Deciduous trees.—Birch of any kind, but the common is as effective as any other. It tells well grouped by itself or backed up by darker foliage. Its effect when drooping over a quiet surface of water is unique. It is one of those trees, thin in foliage, which may be planted on the south side of water, as its shadow is not so dense, as to cause the water to have an inky look. Planes look well, either occidentalis or orientalis; they are excellent massive objects suitable for a jutting promontory, effectually blocking the view at such points. The many varieties of *Quercus americana* are grand subjects, on account of their noble growth and fine autumn tints; they are also quicker growers than *Q. pedunculata*. Acers do not dislike proximity to water; and as they are trees of moderate altitude, and have pleasing shades of colour in autumn, besides standing well against the wind, they ought not to be omitted. The Balsam Poplar and the Lombardy grow rapidly near water, and look well either in groups or as single specimens. They afford excellent shelter, and are good drying-up plants in swampy land when thickly planted and timely thinned out. Ash may be employed, but sparingly. It should consist of the drooping and the American kinds, which are weaker growers than the commoner sorts. *Gymnocladus canadensis*, *Juglans cinerea*, *J. nigra*, and *Ailantus glandulosa*, possessing similarity of foliage, are good telling subjects as solitary trees, and do not suffer from a wet subsoil. *Catalpa bignoniifera* excels the common Elm in height and massiveness, with its roots partly in water. *Celtis australis* is a fine distinct low tree for water margins. *Gleditsias* are also pretty light foliaged trees of moderate growth.

Coniferous shrubs.—From amongst these I would select *Juniperus virginiana*, which makes good groups alone or mixed with *Thuja sibirica*, *T. sibirica plicata*, *Cupressus Lawsoniana* and *Thujopsis borealis*; in fact, most of the hardy *Thujas* do well by water if planted somewhat above its level. *Juniperus sabina*, *J. squamata*, and *J. prostrata* are effective as creeping plants for margins. *Pinus Strobus*, *P. excelsa*, *P. Finaster*, and *P. austriaca* grow well and form imposing masses when aged.

Shrubs.—These may consist of *Sea Buckthorn*, *Eleagnus sativa*, *Hibiscus syriacus*, *Ribes* of sorts, *Lilacs*, *Viburnum macrocarpum*, *V. Lentago*, *V. Opulus*, *Pavia macrostachya*, *Privets* of sorts, *Taxus baccata*, *T. hibernica*, *Pyrus japonica*, *P. prunifolia*, *Yucca filamentosa*, *Y. gloriosa*, *Spiræas* of many kinds, *Laurels*, *Eunonymus europæus* and *E. latifolius*, *Quinces*, climbing *Roses*, *Box*, *Arundo Donax*, *Pampas Grass*, *Clematis Vitalba*, *C. patens*, *C. montana*, and *Virginian Creeper*.

If these varied subjects be employed in groups quite near to or but little removed from the surface, alternating with lines, single plants, and in

the various ways that will suggest themselves to a man of taste, and with a good knowledge of the habits and rate of growth of the various plants, the effect would certainly give satisfaction in a few years. SYLVESTRIS.

SHORT NOTES—TREES & SHRUBS.

Shrubs for bog gardens.—Can anyone give me the names of some evergreen and deciduous shrubs or small trees suitable for a bog garden, in addition to the following, viz.: *Abies canadensis*, *A. nigra*, *Taxodium glauca*, *T. pendulum*, *Chamaecyparis glauca*, *C. sphaeroides*, *C. variegata*, *Magnolia glauca*, *Empetrum rubrum*, *Vaccinium Vitis-idea*, *Myrica Gale*, *Andromeda polifolia* major, *Alder glutinosa*, *Poplars*, and *Willows*?—GLENGALL.

Hardiness of Laurels.—Allow me to state that although common Laurels have stood well with us here they were killed in this locality, and I particularly noted in Messrs. Bunyard's nursery, at Allington, near Maidstone, a very fine lot of Laurels that after the frost were in the following condition: *Caucasica*, not in the least injured; *colchica* and *rotundifolia*, slightly injured; common Laurel, very much hurt. They were large-sized bushes, growing side by side, and in the case of small ones the result was the same.—J. GROOM, Linton.

Single Kerria and Rhododendron Russellianum.—Mr. Groom, on December 24, speaks of the single Kerria, but apparently only as possessing the variegated form, while a little further on "Alpha" proceeds to tell one that both of the plants for which I enquired "are doubtless obtainable from any of our leading tree and shrub dealers." Had such been the case, my communication would not have appeared. It was the failure of some of these to supply them from their own stock, or in any way to procure them for me, which made me seek the wider circulation of THE GARDEN.—E. H. E.

Pruning Limes.—As single specimens, few deciduous trees are so universally planted, both in parks and gardens, as the Lime, and as a tree for avenues it is one of the best, whether in leaf, in flower, or even when the wintry sky can be clearly seen through its bare branches. But one thing I have noticed sadly mars the beauty of many an otherwise fine specimen, and that is the tendency to produce a mass of shoots that choke the centre of the tree, and that spring from the main branches exactly as suckers do from the roots of fruit trees. These, if left alone, become a tangled mass that deprives the centre of the tree of light and air, and monopolises the sap that ought to nourish the more important branches. If cut out before they get matted together the work is easily done, but if left for many years, as one too frequently finds them, unpruned, they need cutting into quite short lengths before they can be separated. As this is the best season for getting all pruning completed, I would urge those having Lime trees in the condition just described to try the experiment of clearing a few of them of their superfluous growths, and if they do not feel so satisfied with the improved appearance of their trees as to warrant their pruning the remainder, I shall be surprised. The healthy growth which the trees cleared will make will, I think, amply testify to the benefit resulting from the operation.—JAMES GROOM.

Transmission of plants through France.—"Glengall" (p. 578) inquires as to restrictions in conveying plants through France. Having just returned from that country, I can give my experience so far as the internal transmission is concerned. From Pau to Biarritz, and from Biarritz to Paris (two separate journeys), my box, not a large one, containing the plants I had gathered in the Pyrenees, was registered and conveyed in the van without remark as ordinary personal luggage. At Paris, however, coming northwards, the booking-clerk and porters made

a great fuss, and demanded 3½ francs for carriage to Calais as merchandise. This I refused to pay, taking the box from them and depositing it under the seat of the carriage in which I was to travel. After this I had no more trouble. Apparently, therefore, there is no restriction to the transmission of plants through France, although it may be a different matter bringing plants into that country. There must be many of your readers who can tell from experience.—P. NEILL FRASER.

NOTES OF THE WEEK.

PINGICULA CAUDATA.—No praise can be too great for this fine Butterwort, which equals in colour even some of the *Masdevallias*. It is now in bloom in the porch of the Orchid house at Kew, where it has been constantly an object of interest since last spring.

PAVONIA MAKOYANA.—This is an erect growing stove shrub; the flowers of which are borne in terminal corymbs, surrounded by bright rosy red bracts, from which the purple corolla protrudes, and from it in turn issue the stamens, terminated with anthers of a bright blue colour. This plant is a native of Brazil, and is now flowering in the T range at Kew.

GOMPHIA THEOPHRASTA.—This evergreen stove shrub bears ovate lanceolate leaves of a pale green colour, and about 1 ft. in length. The flowers are about 1 in. in diameter, and of a bright yellow colour, borne in upright terminal branched panicles. It is a native of South America, and is at present in flower in the Palm house at Kew.

ACACIA DEALBATA.—Some large plants of this in the temperate house at Kew are just now profusely laden with bright yellow blossoms, and the fact of its flowering before the bulk of the species renders this kind doubly welcome. *A. platyptera*, which has been so finely in flower for a long time, is now past its best, but among the kinds commencing to open are *A. obliqua*, *calamifolia*, and *longifolia*.

CILOMENOCOMA MONTANA.—This, also known as *Dysodia montana*, is a noteworthy plant among Composites, on account of the brightness of its flowers, and also from the fact of its flowering at this dull season of the year. The flowers are borne on long stalks, and are about 1 in. in diameter, bright orange-scarlet in colour, and apparently well adapted for cutting. It is a native of Mexico, and is at present in flower in the Palm house at Kew.

GREVILLEA THELEMANNIANA.—Although not showy, this is a graceful plant, which, when out of flower, bears some resemblance to *Southernwood*. At this season its shoots are terminated by clusters of pink blossoms, each of which has a prominent red style and stigma of an unusually bright green colour. It is in flower in the temperate house at Kew, as well as another species, *G. ericifolia*. The first mentioned kind is often found under the name of *G. Preissi*.

ANNUALS FOR WINTER FLOWERING.—Many annuals might profitably be often grown for flowering during the winter than they are; they are easily cultivated, and showy at this time of the year. Several kinds are employed with good effect in No. 4 greenhouse at Kew, where, besides the *Scabious* often mentioned by us, there are now in flower the blue *Cornflower*, *Phlox Drummondii*, *Tagetes*, *Linum*, *Schizanthus*, and, of course, *Mignonette*. It is probable that in time the list of winter-flowering annuals will be largely extended.

EUCHARIS AMAZONICA.—In the gardens at Penrhos, Holyhead, some plants of this are now

in great beauty; they are in a large stove in 8-in. pots, and many of these are producing from fifteen to eighteen spikes. When making their growth they are treated liberally, and also when throwing up their flower-spikes. The drying off or resting system in regard to this *Eucharis* is quite abandoned at Penrhos, its resting often resulting in failure and the loss of healthy foliage.—F. W. E.

LARGE ADIANTUM FARLEYENSE.—At Apley Towers, Isle of Wight, I saw the other day a noble plant of this Fern, which I was told when in full growth and tied out measured 6 ft. in diameter and a little over 18 ft. in circumference. The pot in which it was growing measured 2 ft. 6 in. in diameter. It was in a stove, and was syringed along with the other plants. The soil in which it was growing consisted of a little loam, leaf-mould, peat, and silver sand.—R. O. C.

CHRYSANTHEMUMS AT KEW.—The long period during which *Chrysanthemums* keep in flower is well exemplified at Kew in No. 4 greenhouse, in the embellishment of which they have for months played a conspicuous part, and even now several are still in bloom. The best late flowering kinds there seem to be *splendens* and *Harlequin*, a yellow Japanese sort, and *Lady Margaret*, a white *Anemone*-flowered kind. *Chrysanthemum frutescens* is also maintaining its reputation as a useful winter flowering plant.

EARLY FLOWERS IN CORNWALL.—On New Year's morning I had a look round the grounds to see what flowers we had out, and I found *Snowdrops*, *Primroses* (double and single), *Scizostylis coccinea*, *Anemone apennina*, *Berberis japonica* and *Darwini*, crimson *China* and pink monthly *Roses*, intermediate *Stocks*, *Violets*, *Pansies*, a magenta-coloured *Veronica*, *Silene pendula*, *Pelargonium Vesuvium*, *Jasminum nudiflorum*, *Laurustinus*, *Pyrus japonica*, and *Daisies* and *Buttercups* in profusion. The weather here (North Cornwall) is exceptionally mild, the thermometer seldom going below 45° at night.—J. C. T.

CHOROEZAS.—These are just now the brightest objects on the shelves of the temperate house at Kew. They consist of *C. cordatum* and a number of others, all named *C. Chandleri elegans*, but from the variability among them, they appear to be seedlings, the flowers ranging in colour from yellow to a bright orange-cinnamon, with a purple keel fully as deep as that of *C. cordatum*. There is yet another, a seedling from *cordatum*, quite a miniature kind, the leaves of which are only about 1 in. in length, and ½ in. in breadth, with very deep serratures. The flowers are proportionately small, and though not so showy as those of the others, it is worth growing for its singularity alone.

SNOWDROPS, which generally bloom here about the beginning of February, have already (January 9) opened their blossoms. They are growing on a bank having a south aspect, and are sheltered by ordinary forest trees. When in bloom this bank presents the appearance of being here and there covered with large patches of snow—a beautiful sight. *Rhododendron Nobleanum* has also been blooming freely, but has been much destroyed by the late gales. *Pansies* and the wall-leaved *Stocks* have never been without blossoms during the whole winter.—W. LITTLE, *Ardgowan*.

AMERICAN APPLES IN ENGLAND.—Messrs. Maters & Mayer inform us that their latest advices show a great decline in price. Boston *Baldwins* sold in Liverpool on the last days of November at 9s. to 14s., the demand being light and the fruit arriving in a poor condition. At

these prices there can be little profit to anyone.

—*American Agriculturist*. [Our contemporary has been misinformed. Newtowns have lately been bringing as much as 55s. a barrel, and *Baldwins* have recently brought as much as 25s. in Liverpool. False and rotten Newtowns have fetched the price they deserved. The quality is poor this year, though there must be a few fair specimens to bring such prices. Why cannot our cousins with their enormous range and great variety of country get more of this admirable Newtown for us? There should not be room for cheats to send bogus Newtowns. Some say the true Newtown is not to be had, but we think we have often eaten it.]

GALANTHUS ELWESI.—In the York Nurseries Messrs. Backhouse have in flower this handsome *Snowdrop*, which is the finest of all, the flowers being so large and with such pure white sepals that contrast so charmingly with the *Pes-green* petals. Among other plants in flower in the open air in this nursery are *Botryanthus pallens*, the species with the pale porcelain-blue head of flowers; *Anemone blanda*, a lovely plant in the way of *A. spennina*, but better; *Crocus Imperati*, the most beautiful of a very numerous genus, and *Ornithogalum sororum*.

FLOWERS IN KENT ON NEW YEAR'S DAY.—Mrs. Luard Selby sends the following interesting list of flowers in bloom at The Mote, Tonbridge, on New Year's Day in the open ground: *Snowdrops*, *Winter Aconite*, *Winter Heliotrope*, *Christmas Rose* (white), *Christmas Rose* (purple), *Myosotis dissitiflora*, *Honesty*, *Stocks*, white *Arabis*, yellow *Pansy*, *Mignonette*, *Polyanthus*, double white *Primrose*, wild *Primroses*, blue and pink *Hepaticas*, white *Mule Pinks*, yellow *Paris Daisy*, *China Roses*, *Perpetual* and *Tea Roses*, *Violets*, *Buttercups*, wild *Daisies*. Plants still green and fresh on walls: *Maurandia Barclayana*, *Lithospermum scandens*, *Eccremocarpus scaber*, *Cobaea scandens* (in flower), *Plumbago capensis*, *Habrothamnus corymbosus*, *Jasminum officinale*, *Rhodochiton volubile*, *Tropaeolum Lobbi elegans*, *Abutilon Boulede Neige* (in flower), *Abutilon*, orange (in flower), *Abutilon tricolor* (in flower), *Chrysanthemums*, *Laurustinus*.

FLOWERS IN THE BORDER COUNTIES.—As an instance of the mildness of the weather which we have lately experienced, I may mention that when at Kerchesters, near Kelso, on Sunday last, I observed in the borders there several flowers out on the blue and pink *Hepaticas*, also some *Nemophila* still blooming, though touched by the frost. There were likewise *Wallflowers*, *Christmas Roses*, and a late *Carnation* or two out. Here the *Snowdrops* are beginning to show little white buds at the points of the shoots, which are about 2 in. in height already, but I have no *Hepaticas* out as yet. Kerchesters is an earlier place than this, the soil here being heavy loam with a subsoil of cold clay. I notice a great many *Primroses* of all the usual single kinds coming out in my garden—the pale yellow, white, and bright pink varieties being very pretty at this season of the year. I also observe that the white *Arabis* is commencing to flower here.—GEORGE MURHEAD, *Paxton, Berwick-on-Tweed*.

KEEPING GRAPES.—We have received a very good example of *Lady Downes* seedling Grape, which has been kept since October by inserting the top of the shoot instead of its base in the bottle of water. The berries are large, firm, and well flavoured, quite as good as those of another specimen preserved by inserting the wood below the bunch in the water. Mr. Nisbet, of Aswarby Park gardens, who sends them, writes: "In the case of late Grapes (*Lady Downes*) it often hap-

pens, no matter how closely the young wood may be cut in, that there is not sufficient wood to insert into the neck of the bottle and allow of the bunch hanging clear. This season I cut nearly one-half of the crop of Lady Downes close below the bunch (without eyes). In such cases the wood above the bunches is inserted in the water, and I have found the plan to answer equally well as the usual way, as the bunch I send will show. Though cut from the Vine last October, the bunch looks as if it would keep for another six months. I also enclose for your opinion one bunch cut from the Vine at the same time, having the wood below the bunch."

LATTICE-LEAF PLANT.—Rarely have we seen the curiously beautiful *Ouvirandra fenestralis* in such a thriving condition as in Sir Trevor Lawrence's garden at Burford Lodge, Dorking. Here it is grown in one of the Orchard houses, a rather warm one, but the tub in which it is growing is placed away from the light, which we imagine is one of the chief points to observe in its successful culture, for it is evident that the plants in their native state cannot have access to much light, growing as they do at the bottom of a stream in Madagascar. Another important detail carried out here is keeping the surface of the water in a constant ripple, effected by means of drip from a small syphon pipe, fed from an adjoining tank. Hence the water is never stagnant; therefore does not favour coniferoid growth, such an enemy to the Lattice-leaf plant. Some of the leaf-blades are 1 ft. or more in length, and proportionately broad, and perfect in every respect. It is a beautiful and unusual sight to see this wonderful plant in such vigorous health.

NOTES FROM DUBLIN.

Our first bloom of scarlet *Pau Anemone* (*A. fulgens*) opened to-day (Jan. 4) in the sunshine—a bright and glowing scarlet star. I was out at Mount Jerome, near Harold's Cross, to-day, and in the cemetery garden there saw a pollard Willow with a crop of young wands nearly as brightly blood-coloured as the *Anemone* is seen on a sunny day. In another place the variety with golden shoots is also now lovely along with *sombre Spruce* and silvery-coated *Birch* stems. This is by the Dodder as it meanders through the meadows at the foot of the "Three Rock" Mountain upon which the snow is glistening white. We are enjoying quite a genial spring-like time below here on the sunny fringe of the bay. The Winter Heath (*E. carnea*) as a low-growing or carpet shrub is one of the best of all winter blooming plants, such a distinct contrast to all the wreath-like masses of *Periwinkle* (white, blue, grey, and double-flowered varieties) which bear it company. *Lithospermum fruticosum* is also spangled with its deep blue stars, and *Cyclamen Coum vernum* is pushing up its garnet-tinted buds through the soil along with the old slate-blue *Primrose* and some of those highly-coloured kinds known as the Clapham, Bedford, and Newry strains. I must explain, however, that the Newry strain, of which Mr. Smith sent me a bountiful supply some time ago, are properly *Oxlips*, flowers as large as *Primroses*, some of a rich golden yellow or orange tint, and many on a stalk.

Now is the early time of many fine *Hellebores*. *H. olympicus* major hangs its great white bells from stout scapes 1 ft. or more in height, and it has foliage as fine as that of an *Aralia* or *Fan Palm*; *H. atrorubens* is now pretty with its ruby-purple bells, and *H. purpurascens* is pushing its mouse-coloured buds through the leaf-mould under the shade of the old Hollies; *H. orientalis* and the varieties of *H. niger* are also in bloom.

I should recommend anyone in search of a good window plant of elegant habit and cleanly appearance to try either *Helleborus niger* or *H. foetidus* in preference to the scraggy old *Fuchsias* and dusty *Geraniums*, which are perhaps just a

little too common in front windows during winter. *Aralia Sieboldi* is another fine winter window-garden plant; so is *Aspidistra*, green and variegated, and these, with a few pots or glasses of *Hyacinths*, cannot be improved on as decorative subjects, as they defy frost, and even to a certain extent neglect, and dust may be fought by placing them out in a shower during mild weather, or by dipping them overhead in a bath and then sponging them afterwards, or they may be also given an occasional shower with the syringe.

How lovely some of the Bamboos now are planted in sheltered spots here and there among *Brake Fern*! The *Brake* itself, too, is a beautiful object even in winter. I was surprised to see a pheasant calmly promenading among our Bamboos and *Brake Fern* a day or two ago, and have taken care that it shall not starve so long as it cares to accept our hospitality and shelter. All the birds are having fine times this season. Holly berries were never more abundant, and the genial weather with occasional showers encourages the worms out on the Grass, much to the delight of the thrushes and other songsters. Some kinds of Holly fruit seem specially attractive to the birds. A bush of Hodgen's Holly was three weeks ago laden with its large crimson-scarlet berries. Quite suddenly nearly every blackbird and thrush in the place made it alive with chatter and rustle of wings, and in three hours not a single berry remained. Other kinds in fruit hard by and equally attractive to all appearance are untouched.

F. W. B.

THE LATE MR. NIVEN.

11, Parliament Street, Hull,
December 20, 1881.

SIR,—At a meeting of gentlemen held at the George Hotel, Hull, on the 14th instant, to consider the raising of a fund as a testimonial to the late Mr. J. C. Niven, the following resolution was carried unanimously, viz.: "That in recognition of the long and valued services of the late Mr. James Craig Niven as the curator of the Old Botanic Gardens, and the manager of the present Botanic Garden Company, extending over a period of twenty-eight years, and of his eminent contributions to the cause of botanical science, and as a remembrance of his public worth and many gratuitous labours for the town of Hull, and of the sincere respect in which he was held by all who knew him, a fund be raised as a testimonial, to be applied for the benefit of his widow and children." At the same meeting a large and influential committee was formed for the purpose of carrying out the resolution. In forwarding you this resolution, and desiring your liberal assistance, the committee feel that few, if any, words are needed to commend the object sought to be obtained. Mr. Niven's abilities and high character were well known to all whom this appeal will reach. His public services in raising the Old Botanic Gardens to a high professional status, and his energy and skill in the conception and carrying out of the arrangements of the present gardens are equally well known; while as a public lecturer on botanical subjects, many of them given gratuitously, and his aid in connection with the window garden movement, he did much to popularise his favourite pursuit. The fund, as will be seen by the resolution, is to be applied for the benefit of those whom Mr. Niven has left behind, viz., a widow and several young children, for whom unfortunately he had been able to make but little provision.

JOSEPH WALKER, Hon. Secs.,
R. MIDDLEMISS, } 11, Parliament St.,
JOSEPH DAWBER, } Hull.

[This movement, which has our hearty support, will, we believe, appeal to the sympathies of our readers, particularly to those who know Mr. Niven's work among our garden favourites. He was singularly afflicted in the loss by death of his elder children one by one over a series of years, and Mrs. Niven's illness before his own long illness came on. Mr. Thomas L. Read, one of Mr. Niven's oldest friends, informs us that the fund will be invested and the interest expended on

bringing up the family and helping the widow. In all there are five children. Subscriptions may be paid to the hon. secretaries at 11, Parliament Street, Hull.]

THE FRUIT GARDEN.

NEWLY PLANTED RASPBERRIES.

DURING the last week in March, 1880, I planted on about three rods of ground (of a light loamy character and well prepared in the previous autumn) 7500 small canes, from 3 ft. to 4 ft. long, of Baumforth's Seedling; they were planted in double rows 15 in. apart, with a 3-ft. 8-in. space between them, the object being to lift for sale every alternate row, thus leaving the permanent plantation at distances of 4 ft. 6 in. between the rows, and each plant in the row about 15 in. asunder. Every four canes were then tied together about 2 ft. from the ground, with a second tie near the top, but without stakes or other support. From these I gathered 525 quarts of very fine fruit, fully developed both in size and colour. Each plant threw up one or two canes averaging from 5 ft. to 7 ft. in length of enormous strength, and the wood was well ripened; in fact, they grew so vigorously by the end of July that they threw up a succession consisting of about 10 per cent. of young canes from the middle of the wide spaces, which had then become a perfect network of fibrous roots. These also grew about 3 ft. high, and by the middle of September gave the plantation the appearance of an impenetrable thicket. In lifting each alternate row in the autumn the amount of fibrous roots and soil adhering to them was astonishing. When lifted the ground was simply levelled down, no manure of any sort being used, and the same plantation this year has yielded 8115 quarts of excellent fruit, each stool consisting of about eight canes, but only about half the size of last season, owing doubtless to the excessive drought experienced during their early stages of growth.

In the first week in April this year I planted 4500 more canes of the same sort and precisely in the same way, which produced 380 quarts of a more uniform size of fruit than even the older plantation, and the young canes were also considerably stronger. I planted also at the same time 5000 Northumberland Fillbasket, very indifferently rooted, which yielded 89 quarts, both fruit and young canes being superior to those of a three-year-old plantation I have, but which the drought seemed to completely master, shrivelling both fruit and leaves up at ripening time. The advantage derived from this system is obvious. During such cold, cutting, north-east winds as we have had these last two springs the tops must naturally afford better protection and shelter to the young root-growths than if cut down and left as it were naked and exposed to all weathers. I need not say that having to study the matter from a commercial point of view the expediency of watering or mulching such large quarters is entirely out of the question. However, all being well, I purpose again planting 20,000 canes at the usual time in the spring, and shall have much pleasure in showing them, I hope, in fruit to any one who will favour me with a call. THOS. LAMBERT.

The Gardens, Burton Constable.

—I have to thank several of your correspondents for answering my question respecting the cutting down of newly planted Raspberries. It is my intention to cut down a portion in spring and leave the others uncut, in order to see if there be any appreciable difference between them. I would recommend Raspberries to be planted early in autumn, before the young buds get too far advanced. I have not unfrequently seen the brittle buds broken off, although considerable care was taken at the time of planting to preserve them. Where, however, home-grown plants are used it does not matter so much about planting so early, but in the case of bought ones coming from a distance, and probably several days in transit, the latter half of October or early in November

ought to be a suitable season. I always make it a point to mulch newly-planted fruit trees—in short, anything, let it be fruit tree or bush, flowering shrub or tree. S. K.

BIRDS AND FRUIT BUDS.

WHERE sparrows and finches around bush fruits should have prompt attention given them, or the buds, being plumper than usual, will certainly suffer. Against sparrows white cotton or wool is wholly useless. Last winter, in the fruit coting for the sight or smell of soot in the fruit coting just at that time, we spent much time and cotton in zig-zagging it thickly from spring to spring over the tops of the bushes, and even thicker round the sides, but all ineffectually. In a few hours the sparrows were under the threads and methodically clearing off the buds. They seem to prefer the large-fruited, sparse-budded sorts of Gooseberries, as with us they always attack these first. The only effectual preventive short of netting is to frequently dredge the bushes while they are wet with soot and air-slaked lime; or perhaps better still, make a mixture of these with water, run it through a fine sieve into a bucket, and apply it with a syringe on a drying day. If, however, the birds are at work seize whichever condition presents itself first—wet or dry. Sparrows, I believe, are not generally accused of doing much mischief in this way, but they are our worst depredators, and when driven from bushes they very often attack Plums on walls. Of course the same means will prevent them there also. A. MOORE.

Cranmore Hall.

SHORT NOTES—FRUIT GARDEN.

Good keeping Pears.—The most useful of all Pears which we have is *Passe Colmar*. It is quite unlike all others for keeping after it gets ripe. We have been using it for a long time, it is altogether an excellent variety, and fruit of it from standards to be richer in aroma and somewhat firmer in texture than that from walls.—R. GILBERT, *Burghley*.

Orchards in Lancashire.—"A Grange Gardener" (p. 6), referring to some previous remarks of mine, misrepresents what I said. Damsons, I may mention at once, are a wild crop here, and I may state that the land about Morecambe Bay has a subsoil of rock and gravel. I regret having to repeat that in many of the orchards one finds little but dead branches, Moss, and Lichen, and trees in that condition only produce, especially in dry seasons, small worthless fruits that are unsaleable. At my suggestion, three years ago, a friend cut some tons of branches out of his orchard. In the autumn I asked what sort of a crop he had, and he told me it was double in quantity and size that previously obtained. Root-pruning, it may be added, is as necessary on limestone at times as anywhere else.—J. E. WAITING.

Vines and bedding plants.—"B. S." (p. 592) asserts that Vines can be rested as much as they require with bedding plants housed under them. I know that many are obliged to winter their bedding plants in vineries, and grow fairly good Grapes too, but, like myself, if they could have their choice they would house the bedding plants elsewhere. The heat needed for the latter certainly does injure the Vines. For instance, we may have 10° of frost in the evening when it would not be safe to leave bedding plants without a little heat, and perhaps next morning the thermometer may be up to 50°. Such sudden alternations of heat and cold affect Vines in a dormant state. Therefore, vineries should be kept for Vines only, and the temperature during their resting period should be as low as possible.—W. R.

Mulching fruit trees.—The advantages of this both in summer and winter, and indeed all the year round, are now becoming well known. In some cases mulchings are applied in early summer, in others in early winter, and now is a very good time to mulch fruit trees generally.

The ordinary way of mulching is to spread the manure on the surface of the soil at various depths, but it is very seldom that anything is put over the manure, and drying winds, whether cold in winter or hot in summer, soon sweep a great quantity of the fertilising qualities out of it. This loss may be avoided, and a great saving at the same time effected. Let the soil be removed down to the roots, mulch and then replace the soil so as almost to hide the manure; none of it will then blow about, nor will it become so dry as when fully exposed, and after a time it will be generally admitted that this is a much better way of treating the manure than allowing it to remain loose on the surface. Lately we have been transplanting many fruit trees. In each case the soil put over their roots was left 2 in. or so under the surface level; then a mulching of manure was put on, and over this was spread the remainder of the soil; in this way we are sure of securing the full benefit of the manure. About 2 in. deep of soil over the manure is sufficient.—CAMBRIAN.

Select fruits.—The Pomological Congress of France has caused to be inscribed in their select list the following hardy fruits: Cherry, Bigarreau de Trie; Fig, La Dauphine; Currants, Hâtive de Bertin and Victoria; Peach, Amstein; Pears, Bergamotte Hertrick, Docteur Jules Guizot, Marguerite Marillat; Plum, l'Englebert; Grapes, three varieties obtained by M. Besson, of Marseilles, Clairette Mayel, Hardy and Muscat Talabart.—J. C. B.

Grape Precocée de Marseilles (Early Marseilles). I have often thought that some of the early ripening Continental Grapes might be utilised for open air culture in this country. It is only reasonable to suppose that such as ripen in France and Germany in August would, under careful culture and in average seasons, ripen here by the middle of or even by the beginning of September, that is to say, in the southern and warmer countries. If, as stated in the journal of the French National Society, the above-named variety is the earliest of all hitherto raised, coming to perfection around Paris even in unfavourable years, it should get a fair trial in this country. It was raised by M. Besson, nurseryman, at Marseilles.—J. C. B.

The Clovenfords Vine borders.—I observe that "A. H." doubts the statement made by the Liverpool Horticultural Company that the soil in the Vine borders at Clovenfords is poor. I was at this time two years ago engaged with others in taking some of the soil from off the roots of the Vines in the large houses at Clovenfords, and in applying a mixture of manure, including bones prepared in various ways with other ingredients to the roots, and I must say that I never saw Vines growing in more miserably poor soil, fit only to mix with lime to make mortar. Mr. Thomson explained to us that it was all got from the roadsides, and that while there was some vegetable fibre in it the Vines did well, but now all depended on careful feeding. It was, in fact, just the débris of the whinstone with which the roads were made. There was, however, a great abundance of fine fibrous roots in the borders, no doubt the result of the poor, sharp soil in which they were growing. What was done to these Vines has, I believe, had an excellent effect. I saw them myself last summer, and observed a marked improvement in them.—JAS. RIDDELL, *Wentworth, Yorkshire*.

Root formation greatest in poor soil.—I quite agree with Mr. Spyers' theory in regard to plants rooting more abundantly in poor soil than in rich. I thought everybody knew that, but it seems not, as "Peregrine" thinks that rich soil is most favourable to the production of roots. Rich soil does not encourage root-growth, nor will roots form till it loses its richness. Let "Peregrine" take two Vines, put one in rich the other in poor soil, grow them side by side for six weeks, and then turn both out of their pots. It will be found that one has made a few fleshy roots, while those of the other in poor soil have become a complete network. The same thing happens in Vine borders. No one will find a great quantity of roots in a very rich border, nor has anyone ever top-

dressed a Vine border in order to induce the Vines to make roots. If they have done so, they are in error. I once lifted the roots in a Vine border, the soil of which was very rich, and found very few except thick fleshy ones like those of Bindweed. I cut an opening down to the bottom of the border and filled it up with fine gravel and sand. Twelve months afterwards a complete network of roots began to take hold of the soil beyond. Such roots would never have been made in rich soil.—THURMONT.

Storing Apples.—We all know what great precautions are taken to get Apples or any other stored fruit put away as dry as possible, and it is a question whether we do not carry this too far in some cases. We thus prevent rotting, perhaps; but on the other hand the juices become dried up and the fruit shrivelled long before it ought to be. I believe that airy lofts are about the worst possible places in which to store fruit, and that if we kept as much below the surface of the ground as we usually get above it, we should have sounder and juicier Apples in spring. I have arrived at this conclusion from seeing daily beautiful sound Apples in our orchards that were blown down by the gale in October last, and that have lain partly covered with Grass and leaves ever since; even when bruised they do not show so much decay as those stored on dry shelves. Of course Apples stored wet could not be expected to keep sound, but I think that our fruit rooms of the future might safely partake more of the character of a windmill. American and Canadian success in keeping fruit and vegetables during their severe winters is doubtless owing to the fact that they store nearly everything below the ground line, thereby securing not only protection from frost, but just the amount of moisture that fruits require to keep them in good condition.—J. G. L.

New Pear.—The bulletin of the Pomological Society of France thus speaks of *Poire La France*, a new variety obtained by M. Blanchett, of Vienna: "The three fine specimens exhibited Dec. 13, 1879, were unanimously decided to be of the first quality. The fruit in form, and even in flavour, reminds one of *Duchesse d'Angoulême*. It is, however, more bronzy on the sunny side, the skin is also of finer texture; but what distinguishes it from the *Duchesse* is that well-defined markings run from the base upwards. According to the raiser, the tree should be vigorous and fertile, the mother tree being some fifteen years old." The *Lyon Horticole* speaks as follows of this new Pear: "This year's Pear, *La France*, eaten in February, has been found so good that words fail to convey its juiciness, flavour, and aroma. In brief, it is an exceptionally remarkable fruit, which comes in quite a providential manner to replace the *Doyenné d'Hiver*, a variety that shows in many places signs of general debility. The tree somewhat resembles in outline the *Beurré Blanc*. Its season is from Dec. 15 until the end of February." M. Radigas, commenting on the above in the *Bulletin d'Arboriculture*, observes that if *La France* only half fulfils the description it will find an important place in collections.—J. C.

To keep boots watertight.—I have little faith in, and I never spend money in any of the new or old fangled nostrums vended for this purpose; no dubbin, no gishurine, no patented or unpatented, though much lauded grease. What I use, and what I find most excellent is the fat of fowls, which is comestable in most households. When these are dressed any fat to spare is put into a jar for the purpose and from time to time is melted down. I think its waterproofing qualities are superior in the natural or unmelted state, but so used it does not sink into the leather as it does after being melted, and so is not so cleanly, being liable to rub off; anyhow those having a supply of this article need not wish for anything better.—T. SMITH, *Nevery*.

Exhibitions for the year.—We shall be greatly obliged to secretaries of flower shows if they will kindly forward us the dates of their meetings for the present year.

COUNTRY SEATS AND GARDENS.

COBHAM HALL.

COBHAM HALL, the Earl of Darnley's residence in Kent, is well known on account of its historical associations. To those also who admire the choicest examples of English park scenery, beautiful landscape, and magnificent tree growth, this place possesses more than ordinary interest. The venerable old house is a huge pile of Elizabethan date, the main portion of which forms three sides of a quadrangle. Being of red brick, it is not so imposing as others of less size, but time has done much to tone down the glaring effect of the bricks, as in the case of Hampton Court, St. James's Palace, and other old places. Like the majority of old English houses, it is situated in a hollow, though surrounded by hill and dale, many parts of which, according to modern ideas, would have afforded a more eligible site. Being placed in nearly the centre of the park, it is surrounded by some of the finest tree growth to be found in the country. Originally

this house stood bare in the midst of a vast extent of grazing ground, and cattle browsed under the very windows, but all this was changed about a century ago. Now the building is clad with wall plants of all kinds—Jessamines, Iries, Roses, and some remarkably fine Magnolias, and, as has just been stated, it is enveloped on all sides by picturesque plantations and shrubberies, a beautiful setting in a noble park. Repton did much for Cobham, and the numerous allusions he makes to the place show how highly he thought of his work. In such an old place as Cobham one would naturally expect to find a preponderance of the geometrical style of design, such as at Hatfield or Hampton Court, but, on the contrary, there is very little of that mode of embellishment, and what there is

is quite admissible and conformable to the true art of garden design. There are broad, straight terrace walks in the immediate vicinity of the house, which afford pleasant promenades in summer, and even in winter, owing to their being so well sheltered.

Pleasure grounds.—In these may be found charming glimpses of the true English style of landscape gardening—quiet, broad sweeps of smooth lawn, only interrupted by the boles of huge trees, among which are two of the finest Cedars that exist in the country, both with immense limbs springing from the base and spreading into a magnificent head. Nowhere is any attempt made to mar that sense of repose which confers dignity on a place, such as paltry flower beds, statuary, and the like. The only parterre to be found here is a simple one on the lawn beneath the windows of the south front—a bright little spot, which helps to enliven the somewhat sombre aspect of the huge beds of Rhododendrons, disposed with other evergreen shrubs and trees in a picturesque manner near the house. Rhododendrons are, in fact, one of

the glories of Cobham, and hardy Azaleas when in flower are scarcely less conspicuous.

Beyond the dressed grounds immediately surrounding the house is a large extent of woodland kept in a semi-wild state, the grass being mown twice or thrice a year. Being well diversified in surface, it contains many charming sites for spring flowers, which grow here by the acre. Already Primroses, Daffodils, and Snowdrops are peeping above ground, and later on there will be sheets of Anemones, Bluebells, and others, altogether quite a floral paradise. Rarely have we met with a place better adapted for naturalising the finer and more vigorous kinds of hardy flowers than this woodland. There being such a choice of position, there is scarcely a plant that could not find in it a home under natural conditions. The work of naturalising is indeed already begun in this favoured spot, in which we came across several colonies of Pampas Grass here and there, associated with Flame flowers (*Tritoma*), a happy idea, as the contrast made by the two when in flower late in

varied in surface and finely wooded. From its highest point may be seen far-stretching views of the beautiful county of Kent. The greater portion of the tree growth is Oak, the majority of which will compare as regards bulk and stature with the famous Oaks of Warwick or Notts. Thorns, both red and white, grouped about the park in a highly picturesque manner, form quite a feature. The Ash trees are particularly fine, some having boles as much as 5 ft. through and lofty spreading heads. Chestnuts, too, are remarkable for their huge dimensions, and some are very peculiar in their growth, one in particular called the Four Sisters having a bole 32 ft. in circumference, from which spring four distinct stems. This remarkable tree is some distance from the park in an open wood of Oaks and Ashes called the Heronry, and still the resort of herons. Large numbers of the trees about the park, and particularly those surrounding the house, are over-run with Ivy from top to base—a welcome sight in winter. Whether Ivy be injurious to trees or not is still an open question, but, be that

as it may, without Ivy-clad trees Cobham would lose one of its most picturesque features.

Running in a direct line from the house across the park for about 1000 yards is a noble avenue of Lime trees, consisting of two rows on either side of the roadway. The limbs of these Limes, towering aloft and meeting like Gothic arches, form a grand feature, and in summer, when the trees are laden with bloom, their perfume is delightful. This avenue appears to be about the same age as the one at Hatfield, but this one contains fewer breaks, and the trees are uniformly built, the masses of twiggy growth at the bottom enhancing their appearance.

The kitchen garden at Cobham, which comprises some four or five acres, is well planned, and otherwise a rare example of what a fruit

and vegetable garden should be. It is surrounded by high walls well furnished with hardy fruits of all kinds, especially Pears, which seem to do particularly well in this locality. Of the long lines of pyramid Apples and Pears Mr. Dewsbury, the gardener, is justly proud, for they are uniformly good in every respect, all having the stamp of excellent croppers, a condition mainly owing to the systematic plan of root pruning practised here. This garden is supplemented by another some distance away, for though it may seem extensive and every yard cropped two or three times a year, it is inadequate to meet the demands of such a vast establishment as that at Cobham.

The fruit and plant houses are numerous, most of them forming a compact group. In a yard adjoining the kitchen garden Pines are grown well, and, judging by the quantity, it is evident that there need be no recourse to market for fruits at any season. House after house of Vines and Peaches, too, in such good order, indicate how thoroughly such subjects are dealt with, and the same remark applies to Strawberries, Cucumbers, &c. A



Cobham Hall, Kent

summer must be excellent. Here and there about the place are deep dells, apparently old gravel pits, and these have been embellished with hardy Ferns. In one part of this woodland is a small lake surrounded and overhung with foliage on all sides, and being considerably below the eye it has a fine effect. This is the only piece of artificial water we saw at Cobham, a remarkable fact, as with nine-tenths of the old places the broad naked lake in the park is conventional. Crowning the highest ground is a fine plantation of choice Conifers, amongst which the finest were the Wellingtonia, Abies nobilis, amabilis, Douglasi, cephalonica, and Morinda or Smithi, the last being extremely fine. These modern Conifers, though mere pigmies compared with the magnificent Cedars in the adjoining grounds, are highly picturesque owing to their elevated situation, and being artistically grouped according to their habits of growth and tones of green, their effect is thereby greatly enhanced.

The park is extensive, being some seven miles in circumference, and, as has been said, extremely

noteworthy feature is an unbeated orchard house some 80 yds. in length and about 12 ft. wide, a third of which is planted with permanent trees, chiefly Apricots, which do not succeed well there under pot culture, the remaining portion being filled with all kinds of hardy fruit trees in pots, the back wall being covered with large trained trees. The value of such a house as this is evident, for the greater part of the year the pot trees may be placed outside and other subjects substituted, for example, *Chrysanthemums* in autumn, as the mere protection of glass greatly aids their development. Just now a large batch of well-grown plants of the Christmas Rose is attractive in this house.

The plant houses are filled with the ordinary kinds of decorative plants, the largest numbers being of those that yield flowers suitable for cutting purposes, for which there is a great demand at all seasons. Fine foliaged plants, such as *Marantas*, *Crotons*, *Ferns*, *Palms*, are largely grown for room decoration, for which purpose a large reserve stock is required to replace spoiled plants.

W. GOLDRING.

RAMBLES OF A PLANT COLLECTOR.

(Continued from p. 240, Vol. XX.)

The Yesso trip.—I arrived at Hakodati from Awomori on June 20. Hakodati is situated on a narrow neck of land at the south of the island of Yesso, North Japan, and is one of the ports open to foreigners. I took up my quarters at a Japanese hotel in company with a Welshman, who was travelling for pleasure. We spent several days looking round the hills near and inspecting the beautiful gardens. On the side of Hakodati Head one garden was particularly fine. I found in one a splendid specimen of *Pinus koraiensis* about 50 ft. high, and also pools of water full of different varieties of *Iris Kämpferi*, groups of rocks thrown loosely together, and *Azalea Rollissoni* growing closely between them. I sent home some plants of it from this garden, and I consider that when it gets generally known it will become a favourite. The flower in the bud is just like a Rose in that condition, and it is a very profuse flowerer. The Japanese clip it and keep it like Box edging for rockeries, and in such places it will be an acquisition. Small mounds were made in one garden, covered with short Grass, with here and there stunted specimens of *Pines* and *Azaleas*, rustic bridges spanning *Iris*-planted ponds, dead trees covered with *Wistaria*, a very peculiar specimen of a *Larch* I took to be *L. Kämpferi*, but having no cones on it I could not decide; it was growing in a temple yard. I left Hakodati on June 29 for Nanaye, the Japanese Government farm. The soil was of a deep black peaty nature, and the slope was gradual from the sea to about 7 miles to the hills, forming magnificent land for farming. This government farm is managed very badly, though they have all our latest machinery for reaping, ploughing, &c. Sheep have been brought and lost through bad treatment. The horses I saw were covered with large blue ticks, and some of them were nearly dead from the effects. The officials ask every foreigner who visits the place his opinion about things, and they have a very strange assortment of ideas and ways of working. They condense milk, make butter, cheese, &c. They have all our English varieties of fruit trees planted out here, and I saw good crops of Potatoes, Peas, and other vegetables. Everything was flourishing splendidly, and with good management this district might be made the supply ground for the whole of China and Japan, as far as fruit and vegetables, such as Potatoes, Onions, &c., are concerned. For these there is a ready market at high prices in all the open ports and China.

Nanaye I left to pursue my route to Mori, where I had made up my mind to sleep. About 2 miles from Nanaye I entered the hills; we had a good wide road with the telegraph wire on one side. The vegetation was rapidly getting thicker, and as we ascended the hills by the side of a rushing mountain torrent we came to a change of soil—from black peat to pure pumice. In some of the cuttings through which the road passed we could count the eruptions of the volcano Kumanogodaki—layers of pumice and then black vegetable mould on the top of each other like sandwiches. I noticed *Horse Chestnut*, *Beech*, *Birch*, *Willow*, *Elder* common here, but the most beautiful tree was *Strax Obassia*, with its enormous light green leaves and long hanging racemes of white flowers. It is a low tree and very free flowering. This I sent to Messrs. Veitch, and it has proved quite hardy, having stood out unprotected during the last two winters. It likes an open, dry situation. As we journeyed on we passed over the top of the range of hills, and a splendid scene was before us—mountains, lakes, and virgin forest. Kumanogodaki volcano was smoking a little to the right, with a grand lake several miles long at the foot. The trees on the roadside were covered with *Schizophragma*, *Clematis*, *Euonymus radicans*, and *Actinidia kolomikta* with its white silvery leaves looking like masses of flowers in the distance. *Ampelopsis Veitchi* covered the trunks and limbs of many of the giants of the forest. We passed between two lakes and entered a swamp forest with a bad pumice road, and rode about 15 miles to Mori. We had a pleasant ride; all sorts of wild flowers were growing in great luxuriance by the roadside; *Spiraea palmata* (white) was particularly fine; enormous clumps of *Polygonum cuspidatum* everywhere, sometimes 10 ft. high. In many of the stagnant ponds was a small yellow *Nymphaea*, the leaves of which are used as a pickle by the Japanese, and I found them very good. I slept at Mori, a good sized town on the shores of Volcano Bay. Four volcanoes are seen from the beach at Mori. The sand on the shore is black and looks like iron. As I sat on the small wooden pier in the evening I thought I had never before seen such a peculiar view; smoke was curling out of three of the mountains; one called *Usua* was very active on the opposite side of the bay, near Mororan, our next stopping place. We had rather a miserable time in Mori, the sand-flies were very troublesome by day, and we had mosquitoes by the million at night. We crossed in a small, cranky, Japanese steamer the Volcano Bay to Mororan on the following morning, June 30, and I did not feel easy till I had my foot on the Mororan shore. The engine on the steamer was lashed and patched up in a very dangerous manner. I expected to see the top blow off every moment. Mororan is a very pretty town, situated on the mountain side overlooking a splendid harbour almost land-locked, with fine ranges of thickly wooded hills on the opposite side. After we had taken our dinner (fish and Rice only) we took horses and went on our way to a place called Airo, an Aino village. I saw some Aino women making starch from the bulb of *Lilium cordifolium*, that was growing here in some of the shady valleys in great abundance. I think it is a stronger-growing variety than the ordinary *cordifolium* of Central Japan, whence our English supply of bulbs comes. The Yesso variety grows from 2 ft. to 5 ft. high, and I remember seeing a patch in a warm sheltered ravine, with from 20 to 40 flowers on a spike and almost pure white. I may notice here that *Lilium medeloides* is very abundant on some of the pumice banks amongst scrub Bamboo, and on the low seacoast flats *Lilium Thunbergianum* is abundant; one place

between Mororan and Airo the whole country round was a mass of bloom, forming a magnificent sight. We changed our horses at the government quaiho or station at Airo, and proceeded on our journey towards Sapporo. Instead of a Japanese for our guide, we had an Aino, a splendid looking fellow, dark skinned, and perfect in muscular development; his only dress was a deerskin stitched up, with holes cut in the sides to let his arms through, and a thong of deerskin for a belt. He rode a fine half-bred horse, and had a piece of skin tied with a string round the animal for a saddle. I gave him some tobacco, and in a short time we were great friends.

Ainos have a most peculiar voice, and speak in a timid, soft tone, and I never yet saw the Aino who could stand to look me straight in the eyes; the moment I caught their eyes they dropped them. These Ainos are the natives proper of Yesso, and aborigines of Nippon—short, thick, well-made men, covered with black hair, long beards, and small straight, hawk-like, piercing eyes, quite a distinct race from their conquerors the Japanese. They are a mild, inoffensive people, and very lazy; hunting is their principal occupation, and they eat roots and fungi from the woods, fish, seaweed, and Rice, when they can get it from the Japanese. We continued for several days our journey along the seacoast S.E. of Yesso, till we came to a place called Yubets, or rather Tomacomai; here the road to Sapporo leaves the coast and strikes west through the forest. We, however, left the road and continued up the coast along a splendid beach (with masses of *Platycodon grandiflorum* and *Lilium Thunbergianum* everywhere) to Yubets, where we were told good accommodation and food was to be obtained; and being about 3 miles further, we pushed on. We found a large fishing station here, and excellent hotels. The one I stayed at had a beautiful garden too. After resting here about a day, we took horses to continue our way to Sapporo, the capital of Yesso, or as it is now called Hokkaido. I think for about 4 hours I had the worst ride I have ever had in my life. We had no regular track, as I had asked the Aino guide to take me across country to Chitose, a village on the Sapporo road, to see some lakes which I saw marked on the map. The guide went as straight as possible up the Yubets valley, where, mile after mile, we had swamps, rivers, and thick jungle to get through, and I found very little to interest me, except thousands of water-fowl. I should think this enormous swamp is a great breeding ground for all kinds of swamp birds. In some places where the trees were very thick we had the greatest difficulty in sitting on our horses on account of the mosquitoes and, worse still, a large horse-fly; wherever the latter took hold with its proboscis a blister afterwards came with intense pain. We had to swim one river, as it was very much swollen and I would not turn back. As we neared Chitose, we came upon rising ground, and I found a plant of *Abies sachalinensis* to my great delight, and I thought myself quite repaid for the trouble and danger we had had that day. In one place, after descending a steep bank, we came suddenly on a large female bear; she had one good look at us and was soon out of sight. I wished I had had my gun at hand; I had sent it round the road with my baggage to Chitose. My guide and I had our lunch (balls of cold boiled rice and smoked salmon with Japanese saki) on the edge of a beautiful stream running into Yubets lake. We passed through a splendid forest of Oaks and undergrowth of Bamboo scrub, and by 4 o'clock in the afternoon I was welcomed at the quaiho at Chitose by my boy, who had gone round the road with the baggage.

The following day we left Chitose and passed over a river swarming with trout and eels near

the hotel. There is also abundance of salmon later in the season. We soon came on to higher land after leaving the village, and the journey

frequently result in serious loss were he to employ labour in the same manner and to the same do. The one manures excessively, and his labour is proportionate, whereas in the case of the other it is just the reverse. With the gardener, time gained in the production of a crop is turned to proper and the best account. But not so with the farmer; so long as a good crop is produced the matter of time occupied in its production is, we have reason to believe, a secondary consideration. The author, however, to our thinking, has dealt with this powerful factor to profitable market gardening in the feeblest manner possible, and want of thorough dealing with the subject is exemplified throughout. The thought that market gardening is being treated on by one conversant with its practical workings soon leaves the mind after reading a few pages, and we are forced to the conclusion that the farmer needs for a mentor some one possessing tried knowledge rather than that acquired from books. It is well known that the market gardener so times his productions as to be marketable when prices are highest, while those of the farmer-gardener, by their bulk and all coming together, simply glut the market and force prices down to a point rendering profit out of the question. And in his desire to instruct the farmer in the new branch of market gardening, the author is strangely silent upon that which is really of great importance, namely, situation and aspect. But although field gardening is attended with certain disadvantages, yet there are some conditions eminently favourable to it. Peas, Beans, Cabbages, Carrots, Parsnips, Potatoes, &c., are field crops everywhere, and we think that in the case of these, with the exception of Peas, perhaps, the garden does not yield them of greater excellence. This, however, the author does not impress upon the minds of the farmers in such a manner as to carry conviction that his teaching is practicable or feasible. In reading these pages we are occasionally wearied either by matter long since familiar to us, or by some absurdity. What would the farmer think of the author's system of preparation for Peas if he had "to rib the land across before winter, harrow down in spring, and plough in wide 'breaks,' with the furrow-presser following the plough," &c.? The method given is, from our point of view, ridiculous. Is it not simpler and more like profitable husbandry first of all to plough the land, then reduce it to proper tilth, and finally to drill at the required width? Simplicity and efficiency in all farm operations should be of primary importance. Then again (p. 68) mention is made of the application of "40 tons of horse and cow manure per acre, and about 10 cwt. of a mixture of nitrogenous and phos-

phatic manures, . . . at an estimated cost of £36 per acre." We cannot reconcile with our experience excessive manuring any more than a sparsity of it. Both are grave faults, and we venture to think that not a few farmers will take exception to the Scotch grower's method and cost of manuring for Potatoes. Why, the cost of production per acre is sufficient to discourage, if this statement be credited, everybody from growing them. Many instances are known to us where the entire crop rotted through the application of too much farmyard manure. Moreover, we prefer what is called artificial manure, which, when applied judiciously, gives in most cases a superior quality of Potato. Farmyard manure, when used liberally, produces frequently a poor, waxy tuber. Many pages of the book are devoted to the Potato disease, and, beyond inflicting us with some tiresome reading, the author achieves nothing.

Cabbage is grown extensively in many parts of the country for stock, and this field-garden crop is well understood in its home use. But it can hardly be said that any attempt has been made by farmers to realise by sale, and explicit information how to effect such sale might have been of value to the farmer. We notice that September is the month recommended for sowing seed for a spring crop. This does not accord with our experience of growing the crop successfully. The latter part of July and first half of August is the true seed time. Sow in September, and you will reap a failure. H.

A POCKET GUIDE TO BRITISH FERNS.*

THIS is a welcome little work on our native Ferns, for, although there are now many books obtainable which have been written for the purpose of enlightening those who are lovers of this interesting class of plants, we do not know of any work which, for its size, is so well calculated to attain the object in view as this "Pocket Guide." It is avowedly written for the benefit of "those commencing the study of Ferns," and although not very pretentious, the language used is so simple, and the scientific terms employed so



Avenue of Lime trees in Cobham Park. (Sketched in winter.)

became very monotonous; sometimes we passed along a road cut through thick forest, perfectly straight, the telegraph posts ending in a point on the horizon. At night, however, we came suddenly upon clearings in the forest, and log huts were erected by the Japanese amongst the stumps of the felled trees, the settlers being for the most part Japanese political prisoners and convicts. In one place we passed a fine piece of park-like land with plenty of horses and cows feeding, and fenced in; this was one of the model establishments belonging to the Government of Yesso. We had not much further to go now, and after a brisk trot along a fine pumice road we arrived at the town of Sapporo.

C. MARIES.

BOOKS.

MARKET GARDEN HUSBANDRY FOR FARMERS.*

By W. H. ABLETT.

If we take the hints and ideas contained in these pages as an endeavour on the part of the author to make market gardening familiar and profitable to the farmer, we fear he has not succeeded. To be of value to the farmer there must be a considerable departure from the ordinary routine of gardening. His operations are not conducted with that precision and completeness which we are accustomed to note in the garden, and as it is field gardening to which his attention is herein directed we think there is ample scope for a profitable blending of both systems. We do not, however, lose sight of the enormous amount of manual labour, the employment of which is an absolute necessity to the professional gardener. But to the average farmer it would

* Chapman & Hall, Henrietta Street, Covent Garden.



The "Four Sisters" in Cobham Park.

clearly explained, and indeed the various directions for distinguishing the different parts of Ferns generally and the species in particular, so

* "A Pocket Guide to British Ferns," by —Ridley.

minute and concise, that the work cannot fail to be of great service to those for whom it is specially intended. The pleasures for the student of botany are inexhaustible, and no section of the vegetable kingdom affords a greater supply of them than that of the Fern family; the more we know of it, the more we want to know, and we doubt not this is the experience of thousands who, not having the opportunity of studying the innumerable forms of beauty possessed by the tender exotic kinds, are compelled to give their attention to those that are natives of this country. In ordinary scientific works there are many portions difficult for a beginner to understand; therefore any effort put forth for simplifying the study of Ferns, and therefore bringing a knowledge of them within the reach of all, is worthy of success, and such is the "Pocket Guide" now under consideration. B.

Californian Vine report.—We have received the first annual report of the Board of State Viticultural Commissioners, appointed by the State of California, in which a good deal of interesting information will be found. As we, in this country, look at the question of the Vine from a different point of view altogether—simply that of growing good eating Grapes—nothing can be gleaned from these publications. Our own culture is far ahead of any other known as regards indoor Grapes. There is an interesting plate published with this book, showing the progress made by the ordinary Asiatic Grape when grafted on the Californian species—one having to open sheets as large as maps to see what could have been perfectly well done proportionately on an octavo page in an ordinary book. The Californian wild Vine is supposed to be one of those which will enable the grower to fight the Phylloxera, which is beginning to invade that fair garden-land, and it will require all the knowledge and energy of the cultivators to combat it. This report is published at the State Office, Sacramento, and is an instructive instance of the active State aid given to investigations of this sort in America. Information on a given subject is collected from all parts of the world, and printed in a report easily accessible to all.

"**L'Orchidophile**," journal des amateurs d'orchidées, publié avec la collaboration de M. le Comte du Buysson par la maison Lebeuf, d'Argenteuil. This is a periodical in which the interests of Orchids are taken up. In France there seems no periodical which is broad enough or big enough to attend to all the different branches of gardening. The number just to hand contains an attack on the Orchid management at the Garden of Plants, in which, as in many other botanic gardens, things are apt to fall into a stereotyped and poor state. M. Lebeuf attacks vigorously, and we trust that what he says may do good, but we are without much hope of such establishments, which are very apt to fall behind their time. The harm which the Garden of Plants has done to gardening in France it would be impossible to calculate. As regards arrangement or culture, the place still seems in the middle ages.

German Ivy.—As there is a little misunderstanding as to the application of the name of German Ivy, allow me to ask, Is not the *Senecio macroglossus* represented in THE GARDEN (p. 629) the Cape Ivy rather than the true German, though the latter is the name under the drawing? Is not the true German Ivy so-called the *Senecio mikanioides*? If anyone among your correspondents who knows my name, and who grows these plants, or either of them, will kindly send me a specimen of the flowers and foliage, I shall esteem it a favour, and will refund the postage. I want them not to propagate, but for purely scientific purposes. I have never seen either the *Senecio macroglossus* or *mikanioides* near Manchester.—Geo. W. GRINDON, 71, Rivington Street, Manchester.

—With reference to the use of German Ivy for *Senecio macroglossus*, it may be well to

point out that the title has long been current for *S. mikanioides*. This species much resembles an Ivy-leaved Pelargonium, and was once mistaken for such by one who knew plants well. *S. macroglossus* bears an extraordinary likeness to Ivy, and might be called "false Ivy." It is very probable *S. mikanioides* which "E." heard of as cultivated in rooms on the Continent.—R. I. L. [This was inadvertently called (p. 629) German Ivy. It should have been Cape Ivy.]

Ivy roots.—I enclose you a specimen of root-growing under difficulties. It is a root of English Ivy which had found its way into an earthenware pint measure, which had by some chance become buried beneath the soil.—ROBT. FENN, *Cottage Farm, Sulhamstead*. [What you have sent is not strictly a root, but an underground stem or rhizome like that of Couch Grass. It measured 3½ in. when straightened from the coil sent, a shape which the vessel in which it was imprisoned forced it to take.]

GARDEN EXPENDITURE.

"AN OCCASIONAL VALUER" deserves our thanks for his remarks on this important subject (p. 621). Hardly is the pinch of the agricultural depression felt in lowered rents than on many estates the garden is the first to suffer. Too often looked upon as a luxury, the expenses are curtailed without reference to consequences present or remote. Pennywise-and-pound-foolish tactics are never more fully illustrated than in regard to such matters. The most expensive and least satisfactory luxury on any estate is that of a starved, neglected garden. Balancing expenses against returns, it costs double, treble that of a well managed one, and then it daily becomes worse and takes years to recover. Where reductions are inevitable, the only prudent course is to reduce the area. Labour, however, is mostly the first thing thought of, it being so easy to strike off a man or two from the weekly pay sheet. But gardeners starved of labour, stinted as so many of them are of manure, have their revenge. The produce becomes more scant in quantity and lower in quality, the trees and plants run to ruin, and the soil becomes sterile and filled with weeds. All this is sowing a crop of their master for the future as well as bitter disappointment in the present. Among the injustices inflicted on gardeners one of the most common, though not noticed by your correspondent, is that of giving no credit for the pleasure they afford. While most gardens pay better than any other sort of cultivated land, yet a good garden should be looked upon as a noble mansion, costly furniture, choice pictures, or other work of art as promoting culture, creating pleasure. It may seem a degradation of art to compare the pleasures of gardening and those of sport, and yet how many noblemen spend thousands on hounds, hares, pheasants, for a few weeks' hunting or days' shooting, the keenness of the enjoyment in all such cases being the only reward looked for. It would be thought ridiculous to ask a sportsman if his furs or feathers paid, and it ought to be held equally preposterous to expect a money profit from rich parterres, acres of dressed lawns and miles of walks and roads; pleasure is the only revenue possible from such, and surely it ought to be accepted as sufficient. And yet in private places where a stricter debtor and creditor account is required from the garden, all the pleasure it affords goes for nothing. The pleasure department thus so severely handicaps the more productive or utilitarian as to raise the cost of the produce to what seems fabulous prices. Whereas were due allowance made for the artistic enjoyments afforded by well ordered gardens, it would be found in many cases that the table had been well supplied virtually free of cost. Not only is labour and material supplied and often over-valued, as shown by "An Occasional Valuer," but garden produce is also very generally undervalued. When these and other mistakes are rectified it will, as a rule, be found that no part of the

estate yields a richer or more satisfactory return than the garden, while it also continues to be one of the purest as well as the highest of all human pleasures. D. T. FISH.

THE GARDEN FLORA.

PLATE CCCXIX.—ANNUAL CHRYSANTHEMUMS.

To many it may appear strange that one should think it worth while to direct particular attention to these old-fashioned plants, which one might imagine would be found in every garden. It is, however, a fact that not only these, but some of our oldest border flowers are not half enough known or appreciated. How very few comparatively are aware of the wonderful variety and beauty there is to be found amongst these annual Chrysanthemums. There are few flowers indeed either from tropical or temperate climates that possess such a rich array of colours, some examples of which are shown in our plate, though only a few of the numerous varieties that are now in cultivation. These annual Chrysanthemums have all been derived from two wild types, *C. coronarium*, of the Levant and North Africa, and *C. carinatum* (or tricolor, as it is often called), a native of Barbary. These species have become so intermixed now through culture and hybridising that it would be difficult to meet with the types pure, but it is an easy matter to trace the descendants of each; for instance, all the sorts that have chiefly sprung from the Crown Daisy (*C. coronarium*) have a preponderance of white and yellow, like the original, but some varieties occur wholly white and wholly yellow. *C. carinatum*, on the other hand, is of dwarfier growth, and invariably possesses a shade of brown or crimson in the flowers. The showy varieties known as Burridgeanum, raised by Mr. Burridge, a seed grower in Norfolk, have sprung from *C. carinatum*. These constitute a beautiful class, characterised by compact growth, and having crimson white and yellow in the flowers in concentrate rings. What is known as Dunnett's varieties are also showy, the flowers being large and perfectly double, and either pure white or golden yellow. These are, no doubt, the progeny of *C. coronarium*. There are other varieties, but these are the principal, an idea of the beauty of which may be obtained from our plate, which represents some of the more brilliant single kinds.

CULTURE AND POSITION.—These Chrysanthemums may be used in a variety of ways, and they look well in various positions, and never assume the weedy appearance of some other annuals. In large masses they look well, particularly if grouped in uniform colours, and they also have a fine effect in groups in the mixed border, but in all cases they should have ample space to develop fully. Their culture is simple; they should all be treated as half-hardy annuals, but *C. coronarium* is hardier than the others, and sometimes during mild winters autumn-sown seedlings will survive and make an early display of bloom. The seeds of all the varieties may be sown in April or early in May in open beds or borders where the plants are to flower, or they may be sown earlier in pans or boxes of light, rich earth in a pit or frame, from which they can be transplanted after all danger from frost is over. Planted singly in rich soil in an open and sunny position, they usually begin to bloom in the early part of August, and last in beauty until cut down by frost. They are most valuable for cutting, and are worth growing for that alone. We regret that, owing to a clerical error, there is a mistake in the termination of the specific name on the annexed plate. W. G.



CHRYSANthemum coronaria. Jap.

GARDEN DESTROYERS.

OAK SPANGLES.

THE leaves of the Oak trees have suffered very much last year in more ways than one. Early in the season the trees in many places were almost stripped of their foliage by the caterpillars of a small green moth (*Tortrix viridana*), which were unusually abundant, and later on most of the leaves on many Oaks were covered on their undersides with the common Oak spangles. I found some leaves so thickly set with these little galls, that many were overlapping one another. I took the trouble to count those on one leaf, and found that there were 184 spangles on it. Oak trees are fortunately very hardy in this country, but one wonders how they survive the destruction of their leaves in this wholesale manner. The author of these galls is a small Cynips, a little four-winged insect, which punctures the leaves and deposits an egg in each incision; from these eggs grubs are hatched, which gnaw the leaves, causing a rapid and unusual growth, which envelops the grubs, and are the well-known spangles.

The history of these insects is very peculiar and interesting. Those which may be bred from the spangles are all females; the males are not known, and probably do not exist. Dr. Adler, who has been recently making some interest-

Other members of the family Cynipidae have been proved by Dr. Adler to have similar, or even greater, differences in alternate generations; among them the species which forms the common Oak Apple also makes galls on the roots of Oak trees. Pheasants are very fond of the spangles; the crops of some which were recently opened were found to be full of them. As fowls would probably also eat them it might be worth while at this time of year to turn fowls under Oaks which have been much infested, as they would doubtless in this way destroy large numbers of these insects before they came to maturity.

G. S. S.

WORMS IN GARDENS.

It is evident from "London Stone's" remarks in THE GARDEN of the 17th of December that worms are not to remain on their "pinnacle of greatness," to which they have recently been raised by Mr. Darwin, without some opposition, but public benefactors often meet with similar treatment. I cannot agree with "London Stone" in this matter, for I think that Mr. Darwin's views are quite correct. It may give "London Stone" the information he requires if I answer his objections to these very common creatures *seriatim*. Supposing they do, as he alleges, consume "as much plant food as would grow a very much greater weight of vegetables, this plant food consists chiefly of fallen leaves and twigs, a great portion of which they return as fecal matter, and in this way much of the valuable constituents of the leaves are rendered useful to vegetation more rapidly, and probably in greater proportion, than if the leaves had been allowed to decay on the surface of the ground, when most of the substances of which they are composed would be dissipated in the air, or the leaves swept away by the wind or the gardener. The latter, of course, collects them to form vegetable mould, and if he restores it to the ground he took the leaves from, he will have had the labour of collecting, storing, and distributing it. All this the worms would have done for him, charging only for their food; with this exception, the worms' account should be credited with the gardener's labour and the wear and tear of his tools. If the vegetable mould be not returned to the ground the leaves were taken from, so much the worse for the ground. Worms, by burrowing to the depth of several feet, bring to the surface earth which was useless as food for vegetation, but having been passed through the worms' bodies, and thereby sifted, and then exposed to the air, a fine layer of fresh soil is added to the surface of that which is already impoverished by vegetation.

In his remarks about top dressing, "London Stone" assumes that worm casts are composed of soil entirely exhausted of its humus. I very much doubt if this is correct. It is no proof that this is the case, because plants have not been found to grow in the casts alone. Many substances require mixing with others before plants are able to derive from them the nourishment they contain, and one can easily imagine that such a fine viscid earth would not be suitable to grow plants in. In regard to the levelling powers of worms, it is no proof that they do not exist, or are not worthy of consideration, because they are not equal to those of a thunderstorm, which, however, on tolerably level land is as likely to cause inequalities in the surface as not; the action of the worm is much slower, but also much more certain in its operation. As to worms only being present in rich soils, the case of Mr. Darwin's field, which is chalky soil, and was some years ago covered with stones, is evidence to the contrary, as the stones are now buried, mainly, as he proves, by

the action of worms. I have read Mr. Darwin's book with the greatest interest, and I cordially recommend "London Stone" to procure it; even if he does not agree with the author in his conclusions, he cannot fail to be interested in his observations, which are recorded in the most pleasant manner. G. S. S.

Gooseberry caterpillar.—Having last year used white hellebore powder on my Gooseberry trees, I found it to be a cure for these pests. I used it in the proportion of 2 oz. to a bucketful of water, and applied it about once a month for three months, beginning in March. Although the trees in other gardens near mine were full of caterpillars, I never saw one in mine. I syringed my trees with it, but it might be applied with an old hand brush. The berries should not be eaten after using it till washed clean by the rain.—W. H. W.

Mangold fly (*Chortophila Bete*).—This fly, the pest of our Mangold fields in the grub state, is not exclusively attached to the Beet and Mangold. I have bred it this year from the Goose-foot (*Chenopodium album*), as also from the kitchen-garden Spinach, and I doubt not that the fly may affect other Chenopods in obedience to the season and its food supply. I hear, indeed, that it has been bred from a sea-coast Chenopod, found on the shore of Sussex. The family of the Chenopods is not a very extensive one in Britain. It may contain about two dozen distinct species at most, and as these have the juices and mucilage very much alike in character, the grub, as I remark, may, under circumstances, feed on several other representatives of the group. The careful diagnosis of my friend Dr. Meade, of Bradford, to whom I sent the flies as I reared them, sets at rest, at all events, the distinct identity of the fly. *Chortophila Bete* (Curtis) is identical with *C. atriplicis* of Goureau, and *C. chenopodii* of Rondani, and probably with others that have asserted specific distinction. The ravages of the grub are too sadly known to our agriculturists to need much mention. I have seen whole fields in the north of England looking as if the leaves of the crop were scorched and dried by fire. I have hatched this fly abundantly this season, but in no one instance, whatever may have been the food plant of the larva, has there been any departure from the normal type of the *Chortophila Bete* of Curtis.—P. ISCHBAUD.

The Celery fly.—Everyone who takes any interest in a kitchen garden must have noticed this year the extensive blotching of the leaves of our Celery plants. In some districts scarcely a plant was free. This is the work of the grub of one of the bar-winged flies (*Trypetidae*). I have had abundant opportunity of studying the life-history of this plague of our gardens, and I gladly record my observations for the benefit of your readers. The fly, I may remark at the outset, is double brooded. As soon as the Celery plants of our trenches are sufficiently advanced, the laying of the eggs of the first brood is effected. The young larva is very voracious, and the blotch in the dark green leaves is soon visible. Each week the blotch becomes larger and more unsightly. When the larva is full-fed it creeps forth, and changes to a yellowish pupa, either in the earth, or among the dead and dying leaves that have served it for food and shelter. Here it awaits its final transformation. A month, at most, it is quiet and inactive; it then puts on its wings, which are beautifully barred with black and white bands. I bred many of them, the latest-fed pupae not giving forth their tenants till the middle of August. I may say that I have reared many of this beautiful tribe of flies—from the Groundsel, from the Burdock, from the Thistle, and from the Hardhead (*Centaurea nigra*); but for beauty of barring the Celery fly may compare with most of them. This fly was first described by Linnaeus, in the last century, by the name of *M. heraclei*, after our wild Hogweed. It was altered by Fabricius to *T. onopordinis*, a composite nearly allied



1, Oak leaf covered with spangles (natural size); 2, galls (magnified) formed by *Neuroterus numispatis*; 3, 4, 5, spangles (magnified); 6, grub taken from oak spangles.

ing investigations as to the habits of these and other similar gall-making insects, found that those females which emerge from the spangles in the spring do not lay their eggs in the leaves as their mothers did, but attack the catkins or male flowers of the Oak and deposit their eggs in them, the grubs from which form the ordinary Currant galls, so named from their resemblance to bunches of Currants. The perfect insects from these galls are different in appearance from those bred from the spangles, and are of both sexes; they have hitherto been regarded as a perfectly distinct species, and known as *Spathogaster baccharum*, but the females puncture the undersides of Oak leaves as their grand-parents did, and the grubs from their eggs form spangles similar to those of the last generation but one, thus showing that the spangle Cynips (*Neuroterus lenticularis*) and the Currant gall Cynips (*Spathogaster baccharum*) are the same insect, but that it appears in two different forms, and with very diverse habits in alternate generations. It has long been known that certain other insects at times breed without the intervention of males. Greenfly have been known to do so for sixteen generations, and probably by far the greater number which we find during the summer have been produced in this manner.

to the Cardoon of our gardens. Thus the fly may be considered as feeding, in its larva state, on umbelliferous as well as composite vegetation.—PETER INCHBALD, in *Field*.

MARKET GARDEN NOTES.

Messrs. Hawkins & Bennett's plant nursery at Trickenhham is devoted almost exclusively to the growth of white, pink, and scarlet Pelargoniums, Maiden-hair Ferns in pots, Lilies of the Valley in beds, and Roses in beds and on walls. Most certainly the great feature just now is the myriads of Pelargoniums in 3-in. and 5-in. pots, all producing bloom; in fact, at this place Pelargoniums are never out of bloom. Of scarlet kinds, the old favourite Vesuvius is chiefly grown, the great bulk of the cuttings being got in early in the summer to ensure a big lot of plants for winter blooming. No great quantity of these go to market just now; it is rather too early for them, but the trusses of bloom are gathered and bunched and so largely utilised as cut flowers. It was quite interesting to see several men sitting round a table preparing these flowers for market. The first hand nips out all decaying blooms; the second with a small tin can and a long spout drops just one drop of gum into the centre of each pip, so that when set the petals are held firmly together for some time; the next hand ties into bunches of about a dozen trusses, and thus they are ready for market. The price varies considerably, ranging from 5s. to 10s. per dozen bunches—no great price when the cost incidental to house room, firing, and cultivation is taken into account. A good number of scarlet double blooms, also receiving attention, are gathered individually and put into small paper bags much as sweets are, and in this way go to market for sale. Of course all these are wired before being used, their solid character rendering them for bouquets more enduring than single flowers. The chief, if not only, single pink Pelargonium is Master Christine, and the principal white kind is Madame Vancher. Some few of the white Vesuvius are also grown, but though these flower freely their blooms lack that purity which those of Madame Vancher always show.

The houses in which these plants are grown differ very materially from the ordinary market plant house. They are large broad lean-to's, more like vineries than ordinary plant houses, and very uncommon is the broad path which runs through each range, wide enough to admit of a truck on which to carry out plants or run them in. What space may thus be lost to the plants is compensated for by the convenience resulting therefrom. The back stage throughout is a rising one on which stand the larger pots. The front stage is flat, and this is covered with thousands of succession plants in 4½-in. pots. One very interesting feature in these houses is the system of watering. The waterpot is entirely disestablished, and a constant supply, a flexible pipe and a long copper tube, having a partially curved nozzle, take its place. There are stand-pipes at certain distances alongside the house walks, and to these the hose is attached, so that the man who is engaged in watering can get through a house, watering each plant with the most perfect regularity in about one-third the usual time required with watering pots, and certainly with an expenditure of labour quite trifling. Where the water is laid on from the mains there is danger of too great a force and the washing of the soil out of the pots. That difficulty can easily be remedied, by causing the tube to contract to one-half its diameter and then to expand again. That plan would no doubt effectually check an undesirable rush. But at Trickenhham Messrs. Hawkins and Bennett get their supply from a well, and by means of a hand-pump enclosed in a walled space the water is lifted into a couple of huge tubs that stand up over the pump, and from these the water flows into the service pipes at a moderate pressure. During hard weather the water goes from the

pump into the pipes direct, but such hard weather is never of long duration. It is not often that in market establishments of this kind we see houses built with stout rafters, upon which run sliding sashes. Here all the houses are so constructed, and as one result learned that at this time of the year, when, for many reasons, other work runs short, it was possible to keep men actively employed repairing and painting the lights, having others in reserve to take the places of those operated upon, or to cover up the vacancies with tarpaulin. A shed, heated by an iron slow combustion stove and well lit by gas, is available for work of this kind all through the winter; indeed, I noticed a gas burner fitted to a specially designed stand and supplied by a flexible pipe, that enabled a workman to see all portions of his work with ease. The firm are evidently no great believers in the value of top putties, for they are cutting these away from all lights now brought under repair, fixing the panes of glass with copper brads and giving a couple of coats of good paint. The opinion is held that glass expands and contracts so much vertically, that it in time lifts the top putty, and once this is done the rain runs in to the space thus made, decays the unprotected putty, and causes drip. The chief danger with regard to unputtied glass is found when fierce wind-storms prevail. If brads will hold it secure the top putties may well be dispensed with.

Adiantums and Lily of the Valley.—Of Adiantums, the old cuneatum is yet the most popular market Maiden-hair Fern, and is at Trickenhham grown in immense quantities. A few giant specimens in 12-in. pots give annually a very large number of good seasoned fronds. Where the plants are kept in good cultivation, freely watered, and have ample pot room some three or four crops of fronds may be taken off in the year. The plants are hard out. Only the young immature fronds are left at the cuttings, and then they stand till another good head of robust leafage is produced. The famous Victoria strain of Lily of the Valley, which is so greatly liked here, is not grown in pots to any considerable extent, but almost exclusively in long beds in the open ground. These are now being covered with frames and lights to promote a succession of bloom. The crowns are still further covered to 1 in. in depth with a dressing of half-rotten short manure, through which the sturdiest ones are peeping. This kind is not so well adapted for pot culture for early forcing as are the German imported roots, as the spikes are long and the fine bells somewhat wide apart. When grown without heat or in the beds the spikes are splendid, and cannot well be excelled. Looking at the grand crowns in the beds, growing so very thickly, it is difficult to believe that with proper culture as fine crowns of the common kind might not be obtained in this country as are now got from Germany. Surely there is plenty of land that could grow them and that satisfactorily. A long wall, formerly covered with fruit trees, is now covered with Tea Roses, and next spring a vast quantity of bloom will be taken from them. In quarters Roses innumerable are growing, and of these the leading kind seems to be the old General Jacquemont, as it is such a robust grower, buds freely, and these when half expanded are rich-coloured and beautiful. A long narrow house is devoted exclusively to the growth of Stephanotis trained to the roof. This was undergoing a thorough cleansing with cold water only and being done well. A. D.

Bracken and Virginian Creeper in church decorations.—I was much pleased with the use made of the common Bracken in the harvest festive decorations at our village church. The warm brown tint of the Fern seemed to be just what was required to tone down the glaring colours of such gaudy flowers as the Marigold, Sunflower, Dahlia, &c., and its plentiful use produced perfect harmony of colour in connection with sombre-hued evergreens and bright flowers generally. Long shoots of the Virginian Creeper in its autumnal garb of glowing crimson-scarlet either mixed with evergreens or associated with

grasses and flowers, had a very bright and cheerful appearance, hanging down in festoons with white stone for a background; the rich hue of the foliage, its elegant form, and the graceful growth of the plant itself were thrown out into bold relief.—J. CORNHILL.

TREES AND SHRUBS.

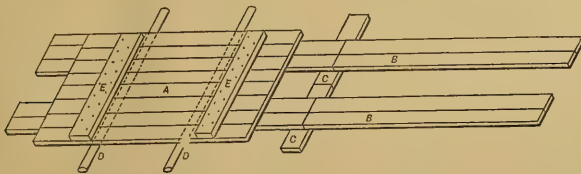
TRANSPLANTING LARGE TREES.

MUCH difficulty is often experienced in transplanting trees of large size with success, yet the operation is simple enough in itself if undertaken with proper appliances and carried out with a moderate amount of care. In laying out new grounds the addition of large trees is a matter to be desired compared with those usually planted. Take, for instance, some of our finest Conifers, as Cedars, Piceas, Abies, &c.; ten, fifteen, or even twenty years must elapse before we obtain trees 20 ft., 30 ft., or 40 ft. in height, and until they attain that stature many are mere shrubs, by no means adapted for effective planting. Considered financially, such work may be somewhat expensive, but the advantage gained far outweighs all monetary considerations.

Root preparation.—There is no doubt that trees properly prepared, as is usually done by nurserymen, are in a better and safer condition to move than those not previously so treated. The preparation usually consists in cutting a trench round the tree at a distance of from 2 ft. to 4 ft. according to size, in order to cut off all the roots at the distances mentioned. This operation induces the growth of new fibrous roots, which are essential both as regards success and for assisting to keep the earth together. As a rule an unbroken ball of earth attached to the roots is indicative of good transplanting, and a guarantee that there is no danger of losing the tree. Where the soil is poor the trench may with advantage be filled up with good material in order to assist the new roots. This root preparation should, if possible, precede the moving by two years, especially in the case of slow growing trees, or those which are found to have few roots, as by that time the new rootlets will have become hardened, and in a fit state to produce fresh fibres when transplanted. The season I prefer for carrying out the above work is from October to December, although it may be done at other seasons. During the following autumn the head of the tree may with advantage be lightened by taking out some of the branches. When trees are removed the first year after preparation, the pruning may be carried out either at the time when the roots are shortened or at the time of removal. This treatment is especially beneficial in the case of vigorous growing, deciduous trees. Conifers do not so much require it. After root pruning a good mulching of well rotted manure should be applied, and copious waterings given during dry weather. A tree thus prepared and properly moved is almost certain to succeed, assuming, of course, that the after management, which will be explained, is strictly followed.

Preparing for moving.—It is not infrequently happens that trees have to be moved short distances in order to place them in good positions with regard to landscape effects. In such cases they should be moved with balls of earth weighing from one to three tons, according to the size of the tree. The mode of doing this is simple and inexpensive. First dig a trench 2 ft. in width at a distance of 8 ft. from the bole of the tree to a depth of about 3 ft. If no roots of consequence are found, take an ordinary four-tined fork and dig another foot or more as may be necessary from the ball, beginning at the top and pressing the soil outwards into the trench, keeping the trench well cleared out, nothing being more essential than plenty of room. Continue reducing the ball until it is within reasonable dimensions, say 6 ft. in diameter, taking care that the roots are not damaged. The latter may be tied in bundles and laid over the top of the ball, making

them fast to the tree. Before proceeding further some sacking or other similar material should be tied round the stem of the tree at about two-thirds of its height, round which make fast three strong ropes or wires as guys, making them fast to as many stakes or other holdfasts. This done, commence to excavate underneath the ball at the same depth as the trench, leaving a block of soil from 2 ft. to 3 ft. in width in a straight line



Platform for transplanting large trees. (Scale, 4 ft. to $\frac{1}{2}$ in.)
A, platform; B B, road; C C, packings; D D, rollers; E E, planks to secure platform.

under the stem. This operation requires considerable judgment, much depending upon the character of the soil. In friable and sandy soils more should be left, whilst in clays and gravels very little is required to support a very great weight. Having done this, lay some strong planks upon the bottom and somewhat under the ball, say two on each side. These are to form what is termed a road. Then two strong rollers in iron or wood should be placed upon these planks at right angles, and as close to the ball as possible. More strong planks should then be placed upon the rollers and parallel with the road, driving them up close to the block of earth that supports the tree. Nothing now remains but to get the block of earth from under the tree, and drive as many planks under it as may be required, so as to have the tree standing upon a platform on rollers. The ends of the planks should have a strong plank placed across them close to the ball and spiked or bolted to them in order that they may be kept in proper position. By lengthening the road with more planks, the ends resting on packings to prevent them from sinking into the ground, the tree may be rolled any distance and turned in any direction by driving the rollers backwards or forwards as may be desired. This is termed cutting the rollers. A third roller will be necessary to catch the ends of the planks when the tree has been moved forward. The power employed for moving the tree may be either horses, levers applied at the ends of the planks, a crab, or any other mechanical appliances which may be at hand. When by reason of the scarcity of roots or the want of adhesion in the soil there is reason to doubt its remaining compact, sacking, matting,

broken up, suitable soil to a depth of at least 1 ft., 3 in. or 4 in. being allowed for sinking, lower the ball and get out the planks. This is done by placing one or more strong planks as may be necessary under the ends of the platform, packing up the ends with short pieces of planks termed packings. This done, take out the road rollers and other materials which may have been used. Then by striking out the packings at one side one at a time

the tree is gradually lowered in a slanting direction until the edge of the ball rests on the bottom of the hole. By putting two levers under the raised side of the ball the whole of the timber may be taken out and the tree let down into its position. During this operation the guy in the direction opposite to that towards which the tree is leaning should be kept taut to prevent the tree from falling over. Fill in the soil, treading it lightly, mulch with well rotted manure or leaf-soil, and give the whole a good watering. The next thing is to make the tree perfectly fast with guys; if in a very exposed situation four or five may be needed besides the assistance of struts for a time. Upon this success very much depends, and few things are more neglected.

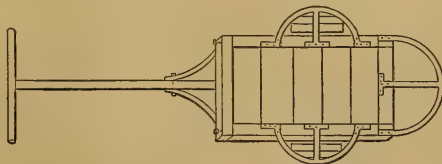
Transplanting machines.—Trees which have to be transported from a distance must generally be carried on wheeled carriages, and the less they are handled and moved about the better, as this cannot be done even with the greatest care without causing damage to roots, stem, foliage, and branches. An excellent method of transport which I have found to answer perfectly is to place the ball upon a low truck, one on two wheels being best; the wheels should be about 18 in. high, with a tire at least 6 in. broad. A strong handle is attached and made fast to the axle or other suitable part of a waggon, timber carriage, or cart; the head of the tree is then tilted forward upon a quantity of soft packing previously placed there. This may consist of soft sprayey faggots, sacks filled with hay or straw, or similar materials, the whole being made secure with ropes to prevent displacement. In this way a tree may be carried

required; this should be made to fix through the handle, near the body of the truck. The moving of a tree on such a truck is simple. It should stand perpendicularly, balanced by three or four guys. Such a truck is also extremely useful for moving large shrubs; the body should be flat and without sides, or if sides are used, as might sometimes be the case to prevent the loose mould falling upon carriage drives, walks, &c., they should be movable. A very strong iron projection should be bolted to the hind part, made somewhat in the form of a scoop, and so fixed that when the truck is tilted to its full height it lies flat upon the ground. Two similar projections must be fixed one over each wheel, to prevent the roots touching them. They should be placed as flat as the height of the wheels will allow. The handle should be very strong and about 6 ft. in length, furnished with a strong T piece at the end 2 ft. 6 in. long. The handle and all the angles of the truck should be strongly iron bound, and ring bolts fixed at each corner to which to attach ropes or chains for the purpose of draught. A tree or shrub having been prepared for moving, the ball is tilted on one side, the truck is run back, and the projection at the back is passed as far under the ball as possible. Then the tree is brought upright again, resting on the projection; power is applied to the handle, which is weighed down to the ground, when the ball may easily be slipped forward so as to be evenly balanced, when it may be drawn to its new site and planted. The advantage of this system is the large ball, which can be moved, and the facility with which the whole operation may be carried out, success in nearly every case being ensured. Small trees and shrubs may be transported by placing a piece of sacking round the collar and making a rope fast, leaving an eye to pass a pole through, which can be carried on men's shoulders, or with a mat folded and sewn with two pieces of rope at the ends to serve as handles. In order to transplant successfully, be sure the drainage is good, that the right kind of soil is used in sufficient quantity, that proper security from rough winds is afforded, that the trees are in a fairly good condition, that they are not planted too deeply, and that intelligent and careful workmen are employed in the moving.

After management.—This consists in attending to the ties which may be used as security against high winds. These should be frequently examined to see that they do not cut into the wood. Many trees are lost from carelessness in this matter. When the growing season commences be sure there is no lack of moisture. Mulch during the first two or three years in autumn or spring, or until the trees get well established. Be careful the roots are not disturbed, and that the foliage is in no way damaged from preventable causes, as, for instance, being eaten by cattle, or whipped by the branches of other trees, and the roots must not be robbed of their due nourishment by overcrowding. C. D.

TREES NEAR DWELLING HOUSES.

Not only is it, as Mr. Grieve (p. 556) points out, dangerous to encourage the growth of large timber trees in close proximity to dwelling houses, but the practice of surrounding them with trees of even such moderate dimensions that their fall could not well cause loss of life or property, is much to be condemned. It is by no means uncommon to see a small villa or country residence so "planted in" that at a short distance but fragmentary glimpses can be obtained of the outside walls and windows. From more than one point of view this is wrong. In the first place, rooms are darkened, those continually inhabiting them being deprived of many hours of daylight in the course of the year, sometimes not even getting a glimpse of sun all through the spring and autumn months. The free circulation of air is impeded to such an extent that the purification of living rooms and bedrooms becomes a matter of difficulty, and last, not least, the plant lover is robbed of some of his best situations for choice climbers, and many a



Truck for moving trees and large shrubs. (Scale, 2 ft. to $\frac{1}{2}$ in.)

or other suitable material should be placed round the ball and tightly bound with ropes—an excellent precaution in all cases. The guy ropes should be well attended to during transit, calm weather being the most suitable for the work, especially in the case of large and heavy-headed trees.

The site having been previously prepared by placing in the bottom, which should have been

safely for long distances, as, for instance, from railway stations or other places. I prefer this mode first, because there is no unloading of waggons or other vehicles, which invariably results in damage being done; secondly, the tree may easily be reared upright upon the truck; and thirdly, by tilting the truck it may be slipped into its position without trouble or injury. A third wheel will be found useful to attach or detach as may be

cosy little nook and sunny border close to the house is rendered dark, dark, and useless for all save a few shade-loving things. How many fine widths of wall—congenial homes for Tea Roses and many other climbing plants of doubtful hardness—are rendered useless for such a purpose by a rank surrounding growth of common Firs, Limes, Beech, Laurels, &c., it would be hard to say; but I could point out many instances in this locality of such misplaced judgment in the matter of tree planting near dwelling houses.

Very often the resident or owner is not to blame in the matter, for it frequently occurs that small suburban, and even country, residences are run up by some speculative landowner or builder, who, when the mechanical portion is finished, calls in the local nurseryman, who engages for a certain sum to lay out and plant the "grounds." All that the speculator requires is that the garden should look as green and furnished as possible for the money, and the nurseryman forthwith carts in a number of the commonest trees and shrubs he has and stocks it. This is the history of a great proportion of the small gardens in the vicinity of large towns, and is the origin of a great portion of the "choke-muddle" shrubberies that one sees in all parts of the country. For a time all goes well, but little by little the available space for plant culture diminishes until the garden at length degenerates into a dark and dismal enclosure, where only in very sunny years flowering plants come to anything like perfection.

A certain amount of shade is of course grateful and good to have, and the owner of a garden likes to shelter himself from the fierce noonday sun under a canopy of verdure, but allowing one or more trees to extend at will is a different matter from hemming in perhaps three sides out of four of the house with a living wall that the sun fails to penetrate, and that even light and air with difficulty force themselves through. Gardeners perhaps more than others suffer from damp, darkened, cheerless dwellings caused through injudicious tree planting. Often the gardener's house is so shut in by trees and strong-growing shrubs that the inmates might, as far as light goes, be living in a wretched London court, and it is mostly in old-established places that this state of affairs exists. This is no fanciful description, and many will, I am sure, recognise the truth of it. Not ten minutes' walk from where I sit there stands a gardener's house so shut in, so smothered with trees, that scarcely any of it is visible from any side. Surely that cannot be a healthy home where the influence of the sun can never make itself directly felt.

JOHN CORNHILL.

Cupressus sempervirens.—This beautiful upright Cypress is among evergreen shrubs what the Lombardy Poplar is among timber trees, a fine contrast to the more spreading and round-headed forms. It is a native of Greece and most parts of the Levant, and was extensively employed by the Romans as an ornamental shrub in their villa gardens. Its deep evergreen branches and leaves render it a desirable tree for planting in graveyards or cemeteries, and owing to its fastigiate habit it forms a suitable tree for planting near buildings where the prevailing architectural lines are horizontal. It succeeds best in a dry, sheltered situation, but in this country, even under the most favourable conditions, it rarely attains to more than 40 ft. in height, although in its native country it reaches 80 ft. and sometimes 100 ft., the famous specimen which Napoleon I. preserved when constructing his road over the Alps being 121 ft. high and 23 ft. in girth of stem. Its timber is of great durability, instances being on record of doors made of this wood lasting for upwards of 1000 years. When judiciously placed along the margins of plantations or among other Conifers of a more spreading habit its effect is strikingly beautiful. In the park here is a group, containing some half-a-dozen, of these trees considerably over 30 feet in height, and remarkable for the profusion of small cones with which the dark evergreen branches are almost incessantly covered.—ANGUS D. WEBSTER, *Penrhyn, N. Wales.*

THE INDOOR GARDEN.

PONTEREDERIA (EICHORNIA) AZUREA.

ONCE upon a time dimorphism in plants was looked upon even by botanists as something strange, if not actually wonderful. Hence we find many plants whose specific name points to this peculiarity. *Asplenium dimorphum* may serve as an example. At the present day, however, the humblest cultivator recognises dimorphism as an every-day occurrence in one phase or other among the plants he cultivates. The common Ivy, *Ficus stipulara* (F. repens of gardens), many kinds of Ferns, *Poinsettias*, *Euphorbias*, *Sagittaria sagittifolia*, *Ranunculus aquatilis*, *Nelumbiums*, *Hippuris vulgaris*, and many other plants just occur to one which are in one way or another instances of dimorphism. Dimorphism indeed is so common among aquatic plants that one almost needs to offer an apology for figuring and describing that instance of it which takes place in the case of the newly introduced *Pontederia* (*Eichornia*) *azurea*, which was so beautifully figured some time ago in THE GARDEN. The ordinary flowering stems of

many merits; from a botanical point of view, its dimorphic habit of growth deserves attention.

F. W. B.

PLANT CULTURE IN FRANCE.

THE establishment of M. Truffaut, at Versailles, has long been noted for the successful culture of such fine-leaved and flowering plants as are required in a small state for decorative purposes. M. Truffaut grows his plants to great perfection in less time than is generally considered necessary in this country; in fact as a rule such things as *Dracenas*, Ferns, small Palms, &c., are brought to marketable size much more rapidly in the trade establishments and market gardens around Paris than with us. Apart from the system of culture pursued, the French market gardener owes much of his success to the soil he employs. Quick-growing plants require rich food, and the more nutriment, provided it be given in a form to be easily assimilated, the greater the progress in the season of growth. Recognising this fact, most Parisian gardeners use well rotted manure as the basis of their composts, and when this is some



Pontederia azurea: showing abnormal growth.

this beautiful plant float on the surface of the tank or water in which they are grown and bear very large obovate or orbiculate leaves, and, indeed, the floating stems remind one of the blooming growths of *Calla palustris* or some of the *Jussieas*. This is during the late spring and summer months. In the autumn and winter, however, these flowering stems die off in a more or less desultory way, and from near the base of the plant, from the collar, so to say, branches are given off, the leaves of which are linear, indeed singularly like those of *Vallisneria spiralis*. This seems to be the resting, or winter, or hibernating state of the plant, and is so distinct in every way from its summer aspect that it is worthy of being shown in the accompanying illustration, which indeed shows the hibernating and intermediate stages, for while the under-water leaves are linear, so soon as they peep out into the air above the water line leaves of the broad obovate outline appear, as is here shown. Our plant of this species was a cutting from the Oxford Botanic Gardens, and being established rather late in a cool house (insummer) tank it has been blooming up to Christmas, and even yet we expect more of its spikes of delicate lilac bee-blotched flowers. As an aquatic plant for a warm house this *Pontederia* or *Eichornia* has

three or four years old it is astonishing how quickly the pots become filled with roots, leaf development being proportionately rapid.

Ficus elastica is largely grown by M. Truffaut, some 5000 plants of it being propagated annually. The cuttings are inserted in January and February, just dibbled into a bed of suitable material in a warm house, and as soon as they are well rooted they are planted out in frames in a gentle bottom-heat, the requisite temperature being secured by hot water. The combination of manure-heat and hot water gives just the warmth and atmospheric moisture in which this plant luxuriates; therefore, with plenty of rich food for the roots to work in, growth is made at such a rapid rate that by July the plants have attained a height of some 2 ft., with finely-developed foliage, in which condition they find a ready sale.

Dracenas, of which some 12,000 plants, consisting of such kinds as *terminalis*, *stricta*, *amabilis*, *Baptistii*, *excelsa*, *Guilfoylei*, *rubra*, *congesta intermedia*, *congesta discolor*, and *australis*, are treated somewhat differently. The details of propagation are the same, but instead of hot-water pipes linings of manure are used to maintain the required degree of heat. To grow *Dracenas* to perfection a more or less saturated atmosphere is

indispensable, and this cannot so well be secured when hot-water pipes are employed as when fermenting materials are alone relied upon to maintain the desired amount of warmth. Thus managed, the vigour of the plants, the amplitude and beauty of the foliage, astonished the members of the commission specially deputed to inspect M. Truffaut's system of culture, one and all declaring that they had never before seen this class of plants brought to such perfection in so short a time. The atmosphere engendered by fermenting material is more favourable to the growth of many plants than the more or less dry heat given off by hot-water pipes, and one can well believe that M. Truffaut's method is that best calculated to produce fine specimens in a short time.

Azaleas.—The stock of these consists of some 50,000 plants of all sizes. M. Truffaut's method of growing Azaleas appears to differ somewhat from that generally pursued in this country. Thus the stocks are propagated in spring, whereas with us they are usually struck in August—at least they are inserted about that time. At M. Truffaut's they are grafted the following spring, and next year grown into saleable specimens. This allows but three years in all to strike, grow, and work the stocks and to bring the plants into marketable size. About 18,000 flowering plants are disposed of annually, and, strange to say, this large number chiefly consists of two varieties, *Rosa punctata* and *Madame Van der Croyssen*. Of the latter I know but little, but it would not be so largely grown at the Versailles nursery were it not of exceptional merit. Of the third year's culture I have no account, but considerable heat and moisture must be used to bring an Azalea, in two years from grafting, into a well developed, well budded specimen in a 4-in. pot. I have had good flowering plants in two years from the cutting state by keeping them growing freely all the spring and early summer in a moist, warm atmosphere, and not allowing buds to form the first year. Good specimens, bearing some twenty buds, may be thus obtained by the second autumn; but I am inclined to believe that by planting out in the summer, as the Belgians do, an even more satisfactory result may be obtained at less expense. Those who grow Indian Azaleas largely should compare the two methods.

Bromeliads are likewise much grown at M. Truffaut's, they being great favourites with the French, and deservedly so, as many of them last long in health in a warm, close room. The day will probably come when this useful and interesting family of plants will receive greater attention than it now does at the hands of English cultivators.

Byfleet.

J. CORNHILL.

IMPROVEMENTS IN HEATING.

If the improvements in boilers referred to by "Peregrine" (p. 12) were real, there would be no necessity for the extra flue inside the houses to utilise the heat, because there would be very little waste with a boiler and furnace properly constructed. There must be some heat sent up the chimney to create a draught and keep the fire going. The worst of it is that with small apparatuses there is the greatest waste of heat in proportion to the fuel burnt, because it costs more as a rule to use all the heat than to have a cheaper boiler and waste the fuel; but where there is over 500 ft. of pipe there is no excuse for such waste when it is clearly understood where the heat goes to. In the common saddle boiler the greatest heat is imparted to the brickwork at the end, and the greater part of what is left must go into the surrounding brickwork of the sides and top flues, and so ultimately up the chimney. The same thing in a more marked degree occurs with an ordinary upright tubular. It is a fallacy to suppose that this heat is given back again to the boiler, as any one may prove by a simple experiment. Suspend a brick by wires over a fire for an hour or two (letting it

get smoked a little), stand a piece of iron pipe 1 ft. long on it; inside of this hang a bath thermometer, and notice what heat is passing through the brick; take the brick away and hold it 3 in. or 4 in. above another thermometer, and note the difference in the temperature; the former is the heat lost that benefits nobody, the latter is the heat apparently given to the boiler by its brick flues or casing. Even this small degree of heat does not warm the boiler, as it is drawn along by the draught of the chimney. But there should be, and are, boilers so made and set that this waste of heat cannot occur, in which, so long as there is a particle of heat left on the bars, that heat is warming the boiler and its contents, and cannot get to the brickwork or chimney. The "active firing" spoken of would be unnecessary with a really powerful boiler, and "that bane of early forcing—very hot pipes," avoided by more pipes with a less extreme heat in them. This bane would be increased by the dry, scorching heat of a flue if coming direct from the boiler furnace.

B. W. W.

SHORT NOTES—INDOOR GARDEN.

Cissus Racheana.—Although this comes from the interior of Sierra Leone, it has endured without injury 12° of frost in the open air. The foliage much resembles that of *Boussingaultia baselloides*; the climbing shoots are furnished with tendrils, and the plant bears small black berries in clusters, from which in its native country a kind of wine is manufactured.—J. C. B.

Calanthes, Poinsettias, and Bouvardias.—A fine display of these excellent winter-flowering subjects was on view at Castle Wemyss the other week. Mr. Henderson, the gardener there, devotes one of his span-roofed Melon houses to their culture during the autumn and winter months, and the soundness of this plan is proved by the grand show of them which I was fortunate enough to see the other day. A line of *Calanthe Veitchi* stood along the back on either side, their flowering shoots being tied to the Melon trellis on the roof; the rest of the shelves were furnished with superbly-grown plants of *Calanthe vestita*, *Bouvardias* in variety, among which the new double one was conspicuous, then a dozen or two well-coloured *Poinsettias* irregularly placed among them, the whole producing a sight seldom seen in the dark months.—G. L. M.

Large-crested Poinsettias.—Seeing in THE GARDEN (p. 625, Vol. XX.) that Mr. Godfray, of Beau Sejour (Jersey), had measured two of his finest *Poinsettias*, and that he had found one to be a little more than 19 in. across the bracts in the widest part, and the other 16 in., I measured a dozen of mine. The single ones were each fully 2 ft. across the bracts, and some of the heads consisted of from thirty-five to forty bracts. The double ones measured 22 in. across the bracts, and the bracts forming the outer circle measured on the average 9½ in. by 2½ in., giving the head quite a circular appearance, and the plants were well furnished with foliage down to the pot. I had also plants struck the last week in September in 2½-in. pots, which produced heads from 9 in. to 1 ft. across.—JESSE DAWE, *Alvington, Torquay*.

Marigolds in winter.—Make a sowing of Meteor in July or August, and it will bloom all winter in a cold house.—W. B. H.

Gloxinia seed.—Would any one tell me whether it would be detrimental to the vitality of *Gloxinia* seed saved 1861 to keep it until 1882? Also the best time for sowing it?—A. F. S.

Japanese Chrysanthemums.—Are the seven kinds of these originally introduced in 1852 by Fortune still in cultivation? If so, where can they be obtained? Even their names will be welcome. Also the names and addresses of any *bona-fide* raisers of seedling *Chrysanthemums*, either on the Continent or in the Channel Islands. Where may good seed of the Japanese varieties best be obtained?—EOR.

THE FLOWER GARDEN.

SOILS FOR ALPINE PLANTS.

THE discussion on the subject of soils for alpine and herbaceous plants is both interesting and useful, because it helps on those, who, like myself, are interested in their culture, and who are struggling with adverse soil. There can be no doubt that all living things depend for their success—indeed their very existence—more or less on the quality of the food on which they live. Wheat, Mangolds, and Oak trees all depend on the soil for their success. Some Oaks are old and stag-headed at 100 years, while others are vigorous at 300 years. I was once extremely anxious with regard to the cultivation of a collection of alpine on a dry hungry soil otherwise good mechanically, but they did not get on to our satisfaction until we hit on the plan of top-dressing the whole surface and forcing in a good thickness of good peat; it seemed to have the effect of cooling the soil, retaining the moisture, and the plants rooted into the top-dressing greedily. This ought to have suggested itself before, if we had only considered that all alpine more or less supply themselves with a substitute for peat soil in the shape of the decay of their own foliage. Saxifrages do so to an enormous extent; so do *Sedums* and *Sempervivums*; and even the common *Arabis* and *Aubrietias*, *Thymes* and *Veronicas* grow over stones in great flakes when let alone, and form for themselves a soil in which to flourish and bloom much more exquisitely than on the flat surface. I have therefore the conviction that the quality of the sub-soil on the whole is a matter of indifference to such plants provided it is not sour from bad drainage, I have at present to deal with a heavy tenacious soil of a clayey texture lying on a black limestone, the whole impregnated with lime to such an extent that the *Rhododendrons* will not live in it long. All strong-growing herbaceous plants such as *Peonies*, *Delphiniums*, the *Ranunculaceæ*, &c., grow well in it, and even dwarf alpine do well enough, but where there is no room on the rockery for small subjects we find little peaks raised on the flat border do admirably for them, just a few stones enclosing a mixture of some leafy peaty compost, also hollow blocks of wood—any hollow, rotten tree cut into lengths of 1 ft. or so and just placed on the surface of the soil and the cavity filled with the compost, the bark of course retained. These make excellent and appropriate sites for pot plants. Blocks of this kind last for many years, eight to ten at least, according to the timber, Oak lasting the longest. For most things we do not fear the stiff quality of the soil so much as the retention of damp; the blocks and little bits of rock are serviceable in elevating the plants above the general surface. The same result can, however, be secured by throwing the surface of the soil into undulations. On the whole I would be inclined to the opinion that any quality of soil can be so modified as to suit any of the soft-wooded alpine and herbaceous plants; a dry, hungry gravel in our experience is the worst, and a very tenacious yellow clay the next worst as to requiring much management. TOLKA.

GOLD-LACED POLYANTHUSES.

MOST reluctantly I ask for a few last words on this subject. Mr. Brockbank assumes that a private letter which he sent to me showed me the *bona-fides* of the two florists with whom he consulted, and who justified him in what he had written. The letter did no such thing; in it he mentions no names, nor is any further information given in addition to what he has published as to these two mysterious florists—except that they had "frequent opportunities of seeing Sunrise in my garden." Sunrise bloomed for the first time on the seedling bed in 1880, and has only been grown for exhibition the last season (1881); and I am in a position to tell Mr. Brockbank with perfect certainty that no florist who has judged at any *Polyanthus* show within his knowledge has ever seen it in my garden. Further, that no florist has

ever seen it more than once in my garden. It is thus clear that whoever his confrères may have been, they could not possibly have the knowledge requisite to form a judgment on Sunrise in its "young state" or "when the flowers are old." Even if anyone saw it when the flowers were old and dead, he could not say truthfully that it was coarse and rough, because it never was so in one single pip. Mr. Brockbank chides me for defending my own flower; this I did, because no other frost had seen Sunrise in all its phases of bloom, and therefore no one could speak with authority as to its character—not Mr. Horner even, who has seen a great deal more of it than Mr. Brockbank and his confrères. I was sorry that Mr. Brockbank compelled me to say anything, but I could not let his description of Sunrise pass uncontradicted. In my first letter (Nov. 5) I say—"But for Mr. Brockbank's remarks I should never have troubled your readers with anything about my seedling Polyanthuses, but have left them to success or failure, according to their merits or demerits." If Mr. Brockbank chooses to believe others in preference to me, I have no more to say.

SAML. BARLOW.

SHORT NOTES—FLOWER GARDEN.

Creepers.—On one side of my tennis ground is a kitchen garden, which I intend fencing off with galvanised wire netting 3 ft. high for a distance of 40 yards, and I wish to cover this with creepers. Will some of your readers tell me the best to use, giving the preference to those that can be planted earliest and that will the soonest cover the fencing and bloom freely during the tennis season? I shall also be glad of any hints as to planting.—AMATEUR.

Collecting alpine plants.—I must thank Mr. E. G. Loder for his correction (p. 5). He is quite right; the Domo d'Ossola plant is *Opuntia vulgaris*, not *O. Rafinesquei*. There were several names mis-spelt in my note which I take this opportunity of correcting. Thus, "Albula" was spelt "Alboria," "Spugen" appeared as "Spyn" ; and "Zermatt" was repeatedly printed "Zermatt." Of course in the latter case the plant was obvious; the others were not so manifest.—GREENWOOD PIM.

Iris Histris.—In answer to Max Leichtlin's enquiry I can say that Iris Histris was in full blossom in my garden on Sunday, Dec. 18. I do not know how much sooner it blossomed, as I was away from home. I reticulata was very nearly out. I have never known it to be so early before. *Galanthus Elwesi* was not so far advanced.—H. EWBANK, Ryde.

—"Iris Histris, leaf-growth only 3 in. I. Kolkapowskiana, ditto, 9 in. (strong); no signs of flowers." I made this note in my garden this morning in answer to Max Leichtlin's query (p. 624). It is strange that exactly the reverse should be at Eastcott. *Galanthus Elwesi* and *G. Imperati* are both in bloom close to Iris Histris, which is only 3 in. high. *Crocus minimus*, from Corsica, is in bloom on the rocky.—A. K.

Cacti indoors and in the open air.—Mr. Wood requests me (p. 626) to give a list of the names of Cacti and other succulents which I have tested for hardiness in cold frames and otherwise. I shall be glad to give him all the information I can, but being away from home I write only from memory. *Opuntia Rafinesquei* (p. 601) I have grown since June, 1878, in an ordinary border at the foot of a south wall 15 ft. or 20 ft. high. The following have passed through severe winters planted in an ordinary border at the foot of a south wall which has a natural coating of Ivy, viz.: *Echinocactus Simpsoni*, *Echinocereus phoeniceus*, *E. texensis*, *Opuntia arborescens*, *O. missouriensis*, *O. m. var. humilis*, *O. m. var. trichophora*, *O. erinacea*, *O. vulgaris*, *Agave utahensis*, *A. virginica*. This last has flowered after being out all one winter. Thinking

that it is important to chronicle failures, I will mention that alongside of these *Agave Deserti*, *A. Shawi*, *A. maculata*, *Dasyliro*, *Bigelowi*, *Mesembryanthemum uncinatum*, and *Puya coarctata* were killed last winter when an exposed thermometer recorded 41° of frost and 35° under shelter. In addition to those already mentioned there are in cold frames *Echinocereus chloranthus*, *E. Fendleri*, *E. gonacanthus*, *E. paucispinus*, *E. phoeniceus*, *var. conoides*, *Opuntia camanichos*, *O. hystrix*, *O. Whipplei*. As has already been mentioned (p. 601), I planted out last June 50 species of Cacti and other succulents in my rock garden. When the winter is fairly over I will not fail to report how they have fared. I may say, however, that during the last few days the exposed thermometer has been down to 11° (showing 21° of frost), but only one plant (*Cacalia articulata*) has as yet been injured.—E. G. LODER.

Hardy Primroses.—I have just been wondering if "A. D.'s" coloured Primroses (p. 4) are in the market. Good kinds are rare subjects for planting on the grass with the wild Primrose, and are particularly effective and long-lasting in our cool soil and climate. From what "A. D." wrote last year in THE GARDEN, I ordered a packet of seed from him (newly saved), sowed it at once, and I believe every seed has grown. Many are pricked off in boxes and are a good size now, some of them having leaves 3 in. long, but they do not feel firm enough in the crowns for flowering this year, at least profusely. I purpose nursing them and planting them on the grass towards autumn. I bought another packet of seed, not described as new seed, from another shop, and said to be good; but out of it I have only about half a dozen plants.—J. S. W.

Birds and Primroses.—The way in which we prevent birds from eating off the tops of Peas is perhaps as good and effective a plan as your correspondent can adopt (p. 5) to save her Primroses. We are troubled here with multitudes of sparrows and chaffinches, and when we sow a border of Peas, as soon as we perceive them coming through the ground into the three lines of worsted stretched over each row about 4 in. from the ground. This proves effectual. The other day in passing along the front of a border of Peas treated in this way I observed that for a few feet at the end of one of the rows the worsted had been broken away by some means, and the sparrows had taken advantage of it, for they were vigorously destroying that part of the row; we are obliged to protect our seed beds when made on borders in front of walks in the same way, or every seed would be taken as soon as it pushed through the soil. I find, too, that sparrows, where allowed to multiply too much, are as destructive to the buds of Currants and Gooseberries as bullfinches, and to prevent our Cherries and Plums from being entirely dissuaded we are obliged to use a considerable amount of powder and shot every year. I regret that I am obliged to resort to this mode of destruction, but there is no help for it, for if allowed to live and multiply and work their will, we should never have a Plum, Cherry, Gooseberry, or Currant in the garden.—ROBT. LLOYD, Brookwood.

Single Pelargoniums.—"A Manchester Gardener" will find the following the best as far as my experience goes, viz., Lizzie Brooks, Col. Seely, Mrs. Davidson, Guinea, Eureka, Lady Bailey, Polyphemus, Commander-in-Chief, Henry Jacoby, Mary Mabel, Lady Sheffield, and New Life.—HOWARD A. WATSON.

Iris Robinsoniana.—Can any one give me any hints on the cultivation of this Iris, such as kind of soil, and if it prefers sun or shade? Being described as a "warm greenhouse plant," I suppose a temperature of about 69° will suit it.—TEMPEST.

Auriculas.—I should be glad if any of your correspondents will advise me what to do with about 200 Auriculas which I have raised from seed sown last spring, and which are now in boxes in a cold frame. They are fine plants, and are throwing up a few spikes of such fine flowers that I do not want to throw any away. Will they do well under any condition planted out?—AN ENQUIRER.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.
G. J. SURREY.

In this Roseless season it is pleasant to be able to pick bunches of white Roses, or what looks like them; but so anyone may do who has half-a-dozen strong plants of the Rose-flowered Bramble in pots in the greenhouse. The delicate pure white flowers, 2½ in. across, are well set off by healthy and abundant foliage, and it is well to cut every flower for indoor decoration, for whereas they naturally come singly at the points of the shoots, if cut with foliage 6 in. or 8 in. long they break again into several flowering shoots at the last joint, and give more of the lovely white Rosés later. Flowers may be cut from the same plants from Christmas till March. A bunch of these alone in flower and bud is a fine table bouquet. Some large trusses of Cliford Rose Geranium do well with tips of *Cineraria maritima*—a pleasant mixture of soft gray and rose colour. *Spananiana africana* and *Cytisus* cut long enough to stand up well are arranged with twigs of Japan Privet, and another table bouquet is of French Daisies, Eupatorium, and spikes of scarlet *Salvia*, with foliage of sweet Geranium. A bright one from out-of-doors is of Golden Holly without berries (some of the twigs nearly all gold) with long and short pieces of yellow Jasmine. *Blechnum corcovadense* is a handsome pot plant for room decoration, but impatient of many days in a dry atmosphere; and plants of *Goldfussia anisophylla*, crowded with pretty bright lilac flowers, are very ornamental. Sprays of *Ficus repens* make a charming ornament for a hall gown; an example just seen is worth mentioning. The dress is of some soft material of a delicate creamy white; a small bouquet of yellow-white *Chrysanthemum*, with leaves of sweet Geranium and Fern, is worn in the front of the bodice, and from it springs a spray of the *Ficus*, which is lightly carried among folds of lace towards one shoulder; another spray is arranged very simply in the hair of the young and very fair-haired wearer. All the ornaments are of turquoise; small turquoise brooches of serpent shape fasten the spray on the bodice. Another plant that admirably answers the same purpose is the Creeping Myrtle (*Myrsiphyllum asparagoides*).

ORNAMENTAL GRASSES IN FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

ORNAMENTAL Grasses impart to an arrangement a lightness and distinctive character which Fern fronds, handsome as they are, fail to give. Moreover, it is difficult to keep up the needful amount of cut Ferns without disfiguring the plants; therefore, we should grow ornamental Grasses for the purpose, thus sparing many Fern fronds. Most of the useful sorts are easily grown from seeds. I sow them in March in the open border on well prepared soil—the earlier in the month the better if the weather is favourable. I have found the following six kinds to be amongst the most useful, viz., *Agrostis nebulosa* and *pulchella*. These come into flower early, and are about the very lightest that can be grown; they are also often sown in pots, and in this manner are useful for furnishing purposes. *Briza maxima* and *gracilis* are two of the best of the Quaking Grasses. I find the former to be especially valuable, and to arrange well with Water Lilies and similar subjects. This sort is also one of the best for cutting and drying for later use. If cut while the deep green tint is in it, it retains its colour better than if left till it has assumed a brownish tinge. *Lagurus ovatus* (the Turk's-head Grass) is one of the most distinct kinds, as well as one of the best for keeping purposes if treated as just advised in the case of the *Briza*. For bold arrangements in association with large flowers this is an excellent kind. Another valuable Grass is *Eragrostis elegans*; this is a later kind than those previously named, and comes in useful for cut purposes up to the time when the early frosts spoil its colour. It is a some-

what stronger sort than the others; when well grown it attains a height of from 2 ft. to 2½ ft. high. It should therefore be allowed more room than the others in which to develop itself. The following sorts are all useful and distinct, viz., *Anthoxanthum gracile*, *Brizopyrum sciolum*, *Bromus briziformis* and *giganteus*, *Hordeum jubatum*, and *Paspalum elegans*. Two new kinds have recently been brought forward, viz., *Briza spicata* and *Bromus patulus nanus*, both of which will doubtless prove useful. These Grasses, taken collectively, are about the best that can be annually raised from seed. *Stipa pennata* and *elegantissima* may be increased by division, perhaps with more certain results than from seeds. These ornamental Grasses are all valuable in their seasons and for preserving for use afterwards—not, however, after they have been disfigured by drying. When those raised from seed are well above the soil, it will be well to thin out any kind that has come up too thickly. This will throw more stamina into those that are left, rendering them more durable. The following annuals are all useful associated with Grasses, viz., *Campanula Loreyi* and its white variety, *Catananche corulea*, Sweet Sultan (yellow), *Rhodanthes*, *Linum grandiflorum* coccineum, the Corn Flowers in various colours, dwarf Poppies, single Dahlias, which have a future before them, and last, but not least, *Gypsophila elegans* and its variety *rosa*. Many more annuals might be named, but these are among the best for decorative arrangements and for using in conjunction with Grasses. One of the hardy perennials that may be raised from seed is *Chelone barbata coccinea*; this when in flower yields good spikes for trumpet vases.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Acacia lophantha.—For the imparting of a semi-tropical aspect to flower gardens, no plant is better suited, more elegant, or of such easy culture as this. For flower garden purposes we treat it as an annual. The seeds, which are very cheap, are sown about the middle of February in light sandy loam; they germinate freely without bottom heat in a temperature of 65°, and as soon as large enough to handle, they are potted singly in 3-in. pots and grown in an intermediate house. By the middle of April they require to be shifted into 5-in. pots, which shift serves them till planting-out time, at the end of May. As to how or with what other plants to arrange it, it is very difficult to say, simply because it will do with almost anything. I think, however, that the most telling use to which we ever put it is as a centre to large vases, surrounded by *Pelargoniums*, with the Ivy-leaved variety hanging down over the vases. In this position the *Acacia* attains a height of 3 ft. by the middle of July, and if not required taller than this the leader should be pinched out, and the plant be kept in good shape by occasionally also pinching out the side shoots. We have also used it with striking effect as a central plant in large beds of dwarf growing plants, and also in the same positions for toning down the brilliant high colour of some of the kinds of bedding plants that one is obliged to use. It is also one of the very best sub-tropical plants alternated with *Abutilons*.

Conifers and other trees.—The exceptionally mild, open weather is proving a boon to all who have much planting or top-dressing labour on hand. Owing to the last two winters being so severe, and the work consequently being delayed, we have long arrears of the latter kind of work to make up, and others, no doubt, are in the same position. As a matter of course, some must stand over for another season; it therefore follows that the trees most requiring renovation should have attention first. For all Conifers and American plants the top-dressing is vegetable soil, that is, peat or well-rotted leaf-soil. If well decayed stable manure can be afforded to be mixed with it, the trees will better appreciate it. Before applying the dressing, remove all the loose top soil, Moss, Couch Grass, or other troublesome weeds, and

then give at least double the quantity of the new dressing in lieu of the old soil cleared off, well firming it over the roots, and if the trees are on turf the sods may be at once rolled back, but should not be beaten down till a good soaking of rain has taken place to wash the soil in about the roots. Ornamental trees of every sort that seem waning may often be resuscitated by treatment of this kind. Thorns, Beeches, Limes, Oaks, and the like are not particular as to character of soil, provided it is good. For these kinds of trees we usually use refuse from Vine and other fruit tree borders, and apply the manure in the form of a mulching over the entire space of the new dressing. When the weather is such that top-dressing cannot be proceeded with, the trenching of ground, draining, &c., by way of preparation for new plantations, should be done, it being desirable that all planting be completed and the roots established in their new quarters ere there be danger of a check from drying March winds or early summer drought.

Bedding plants.—It is now time that any plants that are required in quantity and of which the stock is limited by reason of restricted space for wintering should be started into active growth for the production of cuttings. *Coleus*, *Iresines*, *Alternantheras*, and variegated *Pelargoniums* are among those that we have now so to start, and of the kinds to be raised from seed the following are now being sown, viz., *Cannas*, *Centaureas*, *Ferdinandas*, *Grevilleas*, *Solanums*, *Ferulas*, and *Chamæpeuces*; all are sown in pans and covered with glass till germination has taken place; bottom heat required 65°, top heat 70°. It is too early as yet to sow such quick growing kinds as *Castor-oils*, *Hemp*, and *Maize*, because if sown now the pots get so full of roots that the plants get stunted before planting-out time. *Cannas* that were lifted and wintered in sheds may now be divided into single crowns, and be potted in small pots and started into growth, but the slower the growth is excited the more robustly will the crowns come up. Dahlias, too, sorts that are required in quantity, should be at once placed in heat; they produce cuttings most freely when planted on a bed of leaves in the propagating pit. Cocoa fibre refuse or leaf soil is just as good to plant them in as the best soil that can be got. The single varieties are now so much to the front that everyone will be expected to have them, and now is the time to set about their production. *Violas*, *Calceolarias*, *Gnaphaliums*, *Echeverias*, and *Sempervivums* in cold pits have suffered this season from damp more than they usually do from frost, and to prevent further mischief in this direction they should be frequently picked over, and every particle of decayed foliage removed, the surface soil stirred to hinder moss formation and prevent a sour state, and air should be freely given whenever the weather is fine and unaccompanied by a frosty air.

THE ROCK GARDEN.

T. D. HATFIELD.

We are now carefully looking over our collection of rock plants and closely observing their condition. Supposed "lime haters" have been removed to a soil as devoid of lime as we can get it, blocks of granite being used for rocks, and the riddings of chips for mixing purposes. Our work consists simply in weeding, and afterwards giving a general top-dressing, but where the plants look unhealthy care is taken to completely remove them, and to mix some of our compost—and peat—with the old soil, an operation for which we hope to be fully repaid in spring. Although we do not recommend removal or division at this season of the year, yet we take this opportunity of dividing what we think will bear division, such, for instance, as the *Acenias*, some of which have more than covered the space that can be reasonably allotted to them. If we can find room for these in any out-of-the-way place where better plants are not easily seen, we plant them there. It may be, too, that we have some acquisitions which we think worth increasing, or seedlings which have good roots. Some, too, need to

be removed in a young state or never, as, for example, the *Æthionemas*. For climbing up the north side of large stones we find *Arenaria balearica* very useful; it bears removal now, and establishes itself better than it will do when dry March winds set in. In overhauling it does not do to be careless about seedlings of such useful plants as *Aubrietia græca*; when transplanted in a young state they grow rapidly, and four or five of last year's seedlings will probably cover a square foot or more, and flower well before the year is out. We thought a very pretty yellow-flowered *Draba* (*D. tridentata*) was lost, but late last autumn we were glad to find a few seedlings of it. These we carefully transplanted, and now we find more. Another point to be taken into consideration is the liability of some plants to smother their neighbours, and during the late mild winter many have grown with extraordinary rapidity. A great plant of the rapid-growing *Iberis gibraltarica* hybrida would speedily hide that miniature *Daisy* (*Bellium minimum*). As Mr. Ewbank has directed attention to the *Edraianthus*, notably *E. dalmaticus*, as plants not requiring lime, may I be allowed to say that for them lime is an essential, not necessarily for their existence, but for cultural success. We know what a lingering life two or three species led for two years in loam; though they did not die, they never looked as they do now—healthy. *E. dalmaticus* is one of the hardier kinds, and perhaps will put up with Mr. Ewbank's "hazard treatment" in the climate of the Isle of Wight, but how would he get on with *E. caudatus*, *E. pumilus*, or *E. carinatus*? Some of these I know he once possessed, and yet he says nothing about them. Further, is not Mr. Ewbank's soil a sandy calcareous loam? My impression of his garden is that it looked like a heap, or a series of heaps, of flints from chalk. His soil is stony through the abundance of small flints. This, to me, distinctly proves the presence of a soil produced by the disintegration of chalk rocks or cliffs, though I admit his garden is not situated directly upon chalk. Among our own plants we had on New Year's Day in flower *Hebeborbo niger altifolius*, *H. niger*, *H. dumetorum*, *H. guttatus*, *H. chinensis*, and *H. caucasicus*, *Crocus imperatorius*, *Botryanthus pallens*, and peeping flowers of *Galanthus Elwesi* and *G. imperatorius*. Other flowers, though rather early, are *Draba cuspidata*, *Alyssum podolicum*, and *Potentilla speciosa*.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Conservatory.—After the clearing out of *Chrysanthemums* from conservatories there is often some falling off in the display. This should be remedied by having ready to take their places such plants as come into bloom, either naturally at that time, or with a little forcing. For this purpose there are few things better than the different varieties of winter-flowering *Salvias*, such as those named a few weeks back. These, combined with *Camellias*, forced *Lilacs*, *Hyacinths*, *Tulips*, *Narcissi*, *Cyclamens*, *Primulas*, double and single, early sown *Cinerarias*, pot *Mignonettes*, *Epacris*, *Correas*, *Genistas*, and *Azaleas*, will, if grown in sufficient quantities, keep up a display little inferior to that which may be looked for later on. It is well, in particular, to urge the claims of *Azaleas* for conservatory decoration in the two dull months, December and January, during which time there is no more difficulty in having them in good blooming condition than there is later on, provided the plants have been properly prepared by having their growth made early and their buds set, but this cannot be done by turning the plants out-of-doors to set their buds when the growth was partially made the summer previous. To have them in good blooming order in winter they must be kept tolerably warm under glass through the summer, so that their buds are plump and big, looking as if they were ready to burst by the middle of September. Managed thus there will be no difficulty experienced in getting the flowers to open freely in a moderate heat in November. In

this way there is no forcing in reality required, such as would cause the blooms to come soft in texture, making them of little use for cutting. Medium-sized plants are best for the purpose, and they should never be stopped, but allowed to grow, as they will do if kept clear from insects and vigorous, a little loose, which admits of half the flowers they produce being cut with a fair length of wood attached to them, a way in which they are of much more use than when the growth is stumpy and short. It often happens that the climbing subjects employed to cover an end wall of a conservatory, or to furnish the roof, are the least satisfactory of its occupants. This is especially the case when the plants chosen are naturally of too strong and vigorous a habit. In this case they either smother everything else in the house or have to be so severely cut in as to interfere with their flowering, and, what is even more detrimental to their well-being, they generally exhaust the limited quantity of soil that can be afforded them to grow in to an extent that does not admit of its fertility being kept up by additions or manuring. Where such a state of matters exists it is much the best to remove the old plants and replace them with others of a less rampant habit; this will give an opportunity for completely removing the soil. This is essential, as with permanent plants of this kind comparatively little can be done in the way of removal without destroying the roots to an extent that would be injurious. With the same object in view those plants that will thrive in loam should have soil of that description given them in preference to peat. Whatever is to be done in the way of cleaning conservatory climbers from the worst kinds of insects that affect them, such as mealy bug and scale, should now be carried out whilst the plants are comparatively at rest, as during this time the work can be done much more effectually as well as with less injury. As I have often urged, a sustained effort should be made to completely eradicate these pests, for where nothing is done beyond periodically freeing the plants from a portion of them, the work has to be repeated indefinitely, the result being a continuous expenditure of labour, with more or less injury to the plants.

Browallia elata.—This free flowering little plant is very useful for decorative purposes, coming into bloom in a comparatively short time from seed. If some are raised in this way two or three times in the course of the year, a continuous succession will be kept up; if a little seed is now put in and stood in moderate warmth, it will at once vegetate. As soon as the seedlings are up they should be placed on a shelf near the glass and allowed to remain until large enough to handle, when they must be pricked off into small pots.

Gloxinias.—Of late years there has been such improvement in these plants that they may now be had from seed little inferior to the named varieties, and if sown at once in stove heat and well attended to, they will make nice flowering stock during the summer. The seed should be sown in a pan filled with fine sifted soil, covering it thinly with a little of the finest. Directly the young plants are up they must be set close to the glass, to keep them stout and compact in growth; if at all drawn up the usefulness of Gloxinias is much reduced.

Camellias.—Where these have not yet had their annual cleaning by sponging the leaves and removing any scale insects that may exist on the shoots, it should at once be attended to. In the neighbourhood of towns, where the atmosphere is charged with soot, they are greatly benefited by having their leaves sponged two or three times a year. If the plants are turned out in beds—and still more so when grown in pots or tubs in conservatories, where some warmth is kept up during the winter—special care must be taken that the atmosphere, as well as the soil, is not allowed to get dry, or the buds are sure to drop; this is particularly the case with the white varieties, which are more easily affected in this way than the

others. Where any large plants of inferior kinds exist that it is intended to graft with better sorts, they may now be headed down and grafted. Many of the numerous ways in which grafting is performed will answer, but if the plants are large and the stems a considerable length before branching out, they may be cut down 8 in. or 10 in. above the collar and cleft-grafted, putting in four or six, binding the stock round so as to keep the scions in their places, surrounding the whole with ordinary grafting clay, after which they may be placed in a house or pit where a little extra warmth is kept up. I have found Camellias to succeed best when grafted thus early, before the sap is about to rise, as if the work is deferred too long the flow of sap is such as to often prevent the grafts taking.

Fuchsias.—Young plants struck from cuttings at the latter end of summer, and that have been kept on growing slowly in an intermediate temperature, will now require larger pots, for if ever they are allowed to become at all cramped for want of pot room, they will not come freely afterwards; such as have occupied 5-in. or 6-in. pots may be moved into others 2 in. or 3 in. larger, using good turfy loam with a little leaf-mould, some thoroughly rotten manure, and sand in proportion to the greater or less quantity which the loam naturally contains; but Fuchsias do not require the soil to be quite so open as some other quick-growing plants do. Pot moderately firm, but not so much so as in the case of some things of a more permanent character; pinch out the points of the shoots to induce a close, well-furnished condition. Some varieties require less attention in this respect than others, being naturally disposed to branch out without stopping. A well-grown Fuchsia should, when in bloom, present a dense mass of pendent shoots drooping from a single stem, each clothed with healthy foliage and flowers. This state can be secured in these autumn-struck plants in a way that it is difficult to accomplish with old specimens, or with later spring-struck stock, although the latter make nice small examples, but for large conservatories where size is an object with a considerable portion of the occupants, autumn-struck plants are the best.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Vines.—So far a mild winter has favoured early forcing, and now days are increasing in length, time apparently lost through the dark month of December may be redeemed by taking advantage of bright days for running up the temperature of the house after it is closed, and by making frequent additions of warm leaves to the internal ridges and linings which have been at work ever since the house was closed. A continuance of mild weather will lend an inducement to the maintenance of a high night temperature, but a period of rest being absolutely necessary to successful culture a mean of 60° must not be exceeded during the hours of darkness. Run up to 70° on bright mornings with a chink of air at the apex, and close early to insure a rise to 75° for a short time with plenty of atmospheric moisture. Continue direct syringing until the bunches are well formed and increase the fire heat if they show signs of running to tendrils and drawing up towards the glass. Many growers leave off syringing as soon as the Vines break, but whenever early forcing is carried on against Nature, a good syringe, in skilful hands plays a very important part in keeping the Vines clean, healthy, and vigorous through the early stages of growth. If pruning and cleansing in late houses be still in arrears, lose no time in bringing this work to a close. Avoid the barbarous practice of depriving the rods of their natural protection by scraping off the bark, but wash them well with strong soap water, and keep the ventilators open until the time arrives for starting the Vines. Prepare Muscat houses for shutting up at the end of the month by giving repeated waterings to inside borders, and have a good body of well-worked fer-

menting material ready for use as an economiser of fire heat as well as to produce a mild soft atmosphere, so essential to the proper filling and bursting of the buds. By taking time by the forelock, and bringing Muscats on steadily, they will break evenly, and set their fruit better than if placed under high pressure before they come into flower; moreover, having the whole of the summer before them the fruit will become thoroughly ripe by the end of August, the Vines will have a long season of rest, and the Grapes, being finished under bright sun-heat, will be in the best possible condition for keeping after removal to the Grape room. A mid-season house containing mixed kinds may now be started in the usual way, and pot Vines which have been rested and cut down for growing into fruiting canes may be brought forward by being placed on the fermenting material. Give water sparingly, shake out, and pot when they have made growths 2 in. in length, and plunge in a bottom-heat of 70°. Put in the remainder of the "eyes," using small pots firmly filled with sandy loam, and have a good bottom-heat in a close pit ready for their reception by the first week in February. If grafting is contemplated, perhaps the best time is the rising of the sap in the Vines selected for working.

Pot Vines.—Fruiting Vines may be kept at a temperature of 60° to 65° by night, and 10° higher through the day; give air at 70°, and run up a few degrees after closing. Having selected the bunches for the crop, stop the shoots at the third joint, and allow the first set of laterals to extend until every part of the trellis is covered, but not crowded with foliage. Feed well with tepid liquid, and keep the roots well covered with fresh surface-dressing as often as the soil is washed away from them. Guard against sudden checks by the admission of cold draughts of air, or by allowing the bottom-heat to fall below 70° before it is renovated with fresh leaves in a fermenting state. If the pots are standing on pedestals, the whole mass may be turned to the bottom of the pit without disturbing the roots, which must be kept progressing, otherwise the Grapes will not set well.

Peaches.—Where numbers of houses are forced a busy time is close upon us, and in order to keep pace with daily details in this and other departments no time must be lost in getting late trees tied in and ready for starting or retarding as the case may be. In the management of late Peaches, which it is usual to retard in the spring, all pruning should be performed as soon as the fruit is gathered, when the application of fire-heat for a few weeks will bring up the blossom buds and ripen the wood to the tips. This important point having been secured, vigorous young trees may be tied in full length; but should there exist a doubt as to their ripeness the strongest shoots may be cut back to a triple bud which always contains a shoot-producing bud in the centre. If the trees have not been attacked by insects dispense with paints and strong dressings, which frequently do more harm than good, and wash well with warm soapy water, or a weak solution of Gishurst Compound, 4 oz. to the gallon of water. Large trees which produce an abundance of blossom may be top-dressed with good rotten manure as soon as they are tied in. Young ones will set their fruit best without the manure; but in each case the roots must be well supplied with water from the tanks, as the buds are now swelling and a short supply of water will prove fatal to the crop. Give an abundance of air by night and day, and to counteract the influence of this mild weather, run off all portable lights when the external air stands above 40°. In cold gardens where the open air Peach crop is uncertain, large span-roofed houses of the most simple and inexpensive character, if judiciously planted with the best late kinds, will soon clear their cost, as the demand for late house fruits considerably on the increase, and, like late Grapes, pays better than early forcing. For this house such varieties as Barrington, Walbourn Late Admirable, Gregory's Late, Prince of Wales, Sea Eagle, a fine free bearing kind which keeps a long time after it is gathered, the Nectarine Peach and a few of the high-coloured mid-season sorts, includ-

ing Bellegarde, Royal George, and Dymond. Nectaries, being less valuable, a good yellow, like Pitmaston or Pine-apple, Stanwick Elruge and Albert Victor, might suffice. If the houses are built lofty and planted with trained standards, Bays, Aloes, and a host of half-hardy subjects may be kept in them through the winter months.

Early houses.—By this time many early houses will be in flower, and former directions having been followed the blossoms will be strong, free from aphid, and capable of bearing a free circulation of air—a very important item in the fertilisation of all kinds of stone fruit. On fine days the temperature may rise to 70° with free ventilation, and it may descend to 50° on mild nights, or 10° lower when very severe. Fertilise the blossoms with a camel's-hair pencil; when the pollen becomes buoyant, discontinue direct syringing, but keep the atmosphere soft by damping all available spaces as usual on fine days.

Cucumbers.—A few seeds of Telegraph may now be sown in small pots filled with light, rich soil, and placed near the glass in a light, well-heated pit. Cuttings of a good strain may also be struck in a sharp bottom-heat, provided they can be taken from healthy plants which are free from insects. To ensure success, select firm, short-jointed shoots, insert them singly in small pots filled with fibry turf, previously warmed to a temperature of 80°, plunge under bell-glasses, and treat as seedlings after they are well rooted. Where Cucumber houses are divided into sections, now is a good time to take one in hand and divest the plants of all the fruit and a portion of the old foliage which may have become infested with spider or mildew—two of the worst enemies we have to contend with in winter culture. Cleanse the house and glass, syringe with a mild insecticide and top-dress the beds or pots with fresh virgin loam and horse manure. If worms have found their way into the beds or pots, warm clarified lime water will soon dislodge them. See that houses in full bearing are not over-cropped, feed well with warm liquid manure and guano water alternately, fill the evaporating pans with the same, and top-dress the roots with fresh maiden loam little and often. With increasing length of days syringing may be more frequent, provided it can be done without raising a scalding steam from the pipes when they are hot. Many houses of winter Cucumbers are ruined by scalding steam from highly heated pipes, and it generally happens that the mischief is not discovered until it is too late to seek a remedy. Amateurs and others who grow their Cucumbers upon the old-fashioned principle and depend upon their own seed beds for plants, should now set about getting the materials ready for making up a bed sufficiently large to receive a one-light frame. Good stable manure, well worked and fermented, and sound Oak leaves, in equal proportions, will work up well together.

KITCHEN GARDEN. R. GILBERT, BURGHEY.

We have been busily employed planting Major Hallet's Pedigree Potatoes, two varieties designated round and kidney Potatoes. I like the latter best, being clear, sound, and free from disease; the round variety is too deep in the eyes to quite come up to my standard. While speaking of Potatoes I may add that a friend stored his Potatoes when they were dug up in August, and opening them lately found all one mass of young shoots and the tubers soft. The variety was Myatt's. This, of all systems, is the worst if good crops of healthy tubers are wished for. Early Potatoes should now be on the move, and the sprouts strong and vigorous. Early Peas on south borders should be earthed up and sticked. Nothing hurts young Peas so much as dry, harsh winds. A Pea farmer in Kent runs the plough up the middle of each row and leaves the Peas in a valley; thus managed, the winds blow over their heads—a capital plan, and one which I have for some years known the benefit of. A sowing of second earlies may

be made at once. If I were obliged to grow only one variety of Pea I should not hesitate a moment in fixing on Laxton's Standard. Old green Windsor Beans are still the best. They have the colour, the flavour, and the requisite hardness. Another sowing of them should be made at once. Young delicate Broad Beans, the size of large Peas, are what is wanted. Now is a good time to form and plant new Horseradish beds. The land should be thoroughly trenched; after this operation wait until the surface gets dry and workable. Plant 1 ft. apart in the row, 3 ft. row from row, with a crowbar, selecting young growing pieces with a top. Globe Artichokes may also be planted on rich land, bearing in mind the larger the top or crown the better it is liked. Rhubarb (Hawk's Champagne) is now grand in quality grown and forced in clean leaves, which are much better than manure. By putting a forkful of long manure on the corners just now on outside beds, Rhubarb will soon push, and the same may be said of Seakale; but even in this case there should be ashes first, and then add a little long manure over all. Sweet delicious Rhubarb, much superior to long lean stalks, will be ready in March. We get our earliest spring Potatoes out of boxes 2 ft. square. We fill them with leaf-soil and loam, and plant nine good sets in each. When 9 in. high we give each a good watering and earth up, making each box, or rather the soil in the box, into a sharp ridge; they are most impatient of too much water; seldom any more is required after this earthing up. They are grown in Peach houses under the trees and prove most serviceable. Early Peas in boxes we grow in vineries for the present. We have now ready for use Rhubarb, Seakale, Asparagus, French Beans, Tomatoes, Snow's White Broccoli, and Brussels Sprouts.

SOCIETIES.

ROYAL HORTICULTURAL SOCIETY. JANUARY 10.

ON this occasion the exhibits were fewer than they have been for several meetings past, new and rare plants forming the principal attraction.

FIRST-CLASS CERTIFICATES were awarded to **LYGODIUM FULCHERI**, a most elegant climbing Fern, recently introduced from Australia by the person whose name it bears. It is the handsomest of all the cultivated Lycopodiums. The stems are very slender, furnished thickly with shining bright green fronds, which are pinnate and from 6 in. to 12 in. in length, the pinnae being 1½ in. to 2 in. long, and in a fruiting state, fringed at the margins. The plant shown was some 5 ft. high, and formed a handsome pyramidal specimen. It is said to succeed well in a greenhouse temperature, hence its greater value. From Mr. Kettle, Kingsford, Stanway, Colchester.

TECOPHYLEA CYANOCROCUS.—A charming little Chilean bulbous plant, growing only a few inches in height, having narrow leaves and erect bell-shaped flowers of an intensely deep blue with a light centre. It is a most desirable spring flower, and being really or quite hardy renders it all the more valuable. This is, we believe, the first time it has been exhibited, though plants of it flowered some years ago at Kew. From Mr. G. F. Wilson, Heatherbank, Weybridge.

LELIA ANCEPS VEITCHI, another example of the beautiful manner in which this lovely *L. anceps* sports into varieties. The present one has large flowers with pure white sepals and petals somewhat narrower than those of a good form of the type; the lip is very distinct in its colouring, the lower half being pencilled and lined with golden yellow at its extreme end, the upper part being white, washed and grained with a rich bluish purple, colours that charmingly contrast with the chaste purity of the sepals and petals. The plant shown bore two spikes with three flowers on each. From Messrs. Veitch, Royal Exotic Nursery, Chelsea.

AMARYLLIS AUTUMN BEAUTY, a hybrid variety between *A. reticulata* and one of the large flowered

varieties of the *Hippeastrum* section. The flowers are large, well formed, of a pale rosy pink, beautifully chequered with a pink of a deeper shade. The foliage has the characteristic wide midribs of *A. reticulata*, but less pronounced. It is a lovely addition to winter-flowering bulbous plants, and one of a new race that ought to be encouraged. From Messrs. Veitch.

PRIMULA SINENSIS PRINCESS OF WALES, one of the most beautiful of the light coloured forms yet exhibited. The flowers are large, fringed, and of a most delicate pink, produced in huge clusters well above the luxuriant green foliage. A group of about a dozen plants was shown, all being fine examples of skilful culture. From Messrs. Cannell & Sons, Swanley.

PRIMULA SINENSIS HOLBORN GEM, a very distinct variety, and the nearest approach to a blue that has yet been obtained. The flowers are large, of fine form, borne in fine clusters, and of a beautiful purple-blue—a colour which cannot fail to attract the attention of everyone. It is a decided break from the ordinary run of Chinese *Primulas*, and others of a similar character would be welcome. From Messrs. Carter & Co., High Holborn.

ERICA HYEMALIS ALBA, a new variety, differing in no way from the original, except in the colour, which is a pure white. The plant shown was well furnished with bloom, and showed well what a beautiful variety it is. From Mr. Kinghorn, Richmond.

PELAGONIUM SURPRISE, a second-class certificate was awarded to this variety. It is said to be a sport from the changeable *Vesuvius*. The flowers are flesh coloured similar to that of the single zonal variety *Lizard*. From Messrs. Aldred, Bexley Heath.

Besides the above the most noteworthy exhibits were *Bignonia venusta*, some beautiful flowering sprays of which were exhibited by Mr. Green, from Sir George Macleay's garden, Fendell Court, Bletchingley. The flowers are trumpet-shaped, smaller than most other species, and of a bright orange-yellow colour, and being borne in dense clusters thickly on the branch, have an extremely showy effect. It is one of the old plants that ought to be more generally grown. A letter of thanks was accorded to the exhibitor. An extremely fine flowering branch of *Lapageria rosea* was sent by Mr. Allan from Lord Suffield's garden at Guntton Park, Norwich. It bore fifteen flowers in a crowded cluster, occupying about ½ ft. length of the branch. It represented the finest deep-coloured variety, and the foliage, which was uncommonly luxuriant, plainly indicated how well the *Lapageria* is grown at Guntton. A cultural commendation was deservedly accorded.

Mr. G. F. Wilson showed some remarkable examples of *Odontoglossums* all growing in 3-in. pots, and the plump bulbs, fine spikes, and excellent flowers admirably illustrated that the treatment pursued suited well the requirements of the plants. The kinds were a fine form of *O. triumphans*, and two or three excellent varieties of *O. crispum*. The same exhibitor also showed a flowering bulb of the new *Xiphion* (*Iris*) *Kolkapowskyanum*. It is in the way of *X. reticulatum*, but has more white about the flowers, but none the less attractive. It is not much known at present in gardens. A new *Orchid*—*Trichocentrum Pfau*—was shown by Mr. F. Sander, St. Albans. It is a small growing epiphyte with short thick leaves, and flowers about 1 in. across, having sepals and petals half white and half chocolate-brown; the lip is white, crisped at the margin, and with a conspicuous carmine blotch at the base.

Messrs. Veitch showed a small group which included *Columna Kalbreyeri*, a very distinct looking plant from New Granada. It has long leaves of a metallic green above, and reddish-purple on the under surface, and large pale yellow flowers produced direct from the naked stems; *Rhododendron Queen Victoria*, a handsome hybrid variety raised between *R. javanicum*, *Princess Royal*, and *Princess Alexandra*. The flowers are orange-red, in large clusters; *Davallia Mariei*, a dwarf Fern with most elegantly cut fronds; the beautiful and almost perpetual flower-

ing *Jasminum gracillimum* and *Begonia socotrana*, shown on previous occasions; also the graceful flowering *Garrya elliptica*, a desirable hardy shrub.

A bright display as usual came from Messrs. Cannell & Sons, Swanley, this time consisting chiefly of cut *Pelargoniums* and Chinese *Primulas*. Among the latter, that called Dr. Denny was the finest. The flowers are uncommonly large, finely fringed, and of an intense carmine-crimson. They are, moreover, freely produced well above the foliage. The *Pelargoniums* consisted of the best winter flowering kinds, some of the names of which might be useful. Of the singles were Eureka, Lizzie Brooks, Fanny Catlin, Commander-in-Chief, Madonna, Hettie, Mrs. Strutt, W. B. Miller (very fine), Metis, Mrs. Moore, La France, Miss Hamilton, Constance, Dr. Orton, New Guinea, H. M. Pollet, Eva, Lizard, Rose, and Eurydice, all of which represent the chief colours to be found among the zonal *Pelargoniums*, and otherwise the finest sorts grown. The most noteworthy of the double-flowered sorts were Paul Bert, Circe, Jules Simon, Henri Cannell, F. V. Raspal, J. P. Stahl, Sergt. Hoff, Heroine, Darvin, Aglaia, Naomie, Ludwig Kester, Leon Simon, M. Cannell, and Album perfectum, the latter the finest of the double whites. The same exhibitors likewise showed a beautiful bouquet of Daisy-like flowers, consisting of the carmine-tinted *Cineraria cruenta*, one of the parents of the fine hybrid sorts; the sky-blue *Agathaea coelestis*, and the white *Chrysanthemum frutescens*, which together made a novel and attractive nosegay.

New Azaleas were shown by Mr. Todman, Bushey Down, Tooting Common. They consisted chiefly of hybrids of *A. amena*, the white *A. ramentacea*, and the beautiful Indian-red *A. obtusa*. The varieties were Miss Annie, rosy-purple; Princess Beatrice, white; Miss Todman, rosy-pink, with dark centre; Miss Lizzie, rosy-pink; Prince Leopold and Prince George, Indian red, all of which are more or less distinct, forming a race of greenhouse Azaleas that are specially well adapted for forcing.

Mr. Turner, Royal Nurseries, Slough, sent another new tree carnation, named Worthington Smith. It is a very fine sort with large, very double flowers of a brilliant vermilion. The General Horticultural Company showed a plant of *Draecena Goldiana*, the first instance in flower of the kind in this country, we believe. The flowers are of no great beauty, being a dense cluster terminating the stem, but probably they will afford the means of hybridising with other kinds, and no doubt Mr. Bausé will take advantage of it. Messrs. Carter, High Holborn, sent besides the blue *Primula* some well-grown plants of another beautiful sort named Rosy Morn, with large rose-purple flowers, also a basket of small, but well-flowered plants of *Bouvardia Alfred Neuner*.

From Chiswick came a fine display of Chinese *Primulas*, including the Chiswick raised varieties, the red, white, and purple; also some excellent examples of Gilbert's double kinds, notably Mrs. A. F. Barron, Princess, Marchioness of Exeter, all beautiful whites, and a plant of Earl of Beaconsfield, which is normally pink, but with a flowering shoot wholly white, thus furnishing an illustration of the sportive tendency of these varieties.

FRUITS.—The exhibits of these were neither large, or very important. Mr. Burnett, of the Deepdene, Dorking, sent a couple of baskets of fine examples of Mrs. Pince's Black Muscat Grapes from Vines grafted on the Royal Muscadine. The flavour of these was excellent, quite as fine as that of the Alexandrian Muscat. The same exhibitor also showed examples of Beurré Sterckman's Pear and Essex Spice Apple.

Apples were pretty numerous shown. Mr. Dean, Ealing, had fine fruits of Winter Pearmain, which the committee considered the true variety and of excellent quality. It is a large and handsome sort. Messrs. Cranston, Hereford, sent Herefordshire Beaufin, a medium-sized red sort. Messrs. Rivers showed Lord Burgley and Nancy Jackson. Mr. Robbins, Rydd Court, Upton-on-Severn, contributed a seedling named Rydd Court Seedling,

which was considered fairly good, and six varieties were exhibited by the Rev. G. M. Straffan, Tillington, Petworth, which were Cat's-eye, Queen's Own, New Golden Pippin (a very small round sort), Cornish Gilliflower, Scarlet Pearmain, and Grecian, all good samples and in excellent condition, and for which the exhibitor received a letter of thanks. Mr. Barter again exhibited some excellent produce from his Mushroom beds under open-air culture; as we remarked, they were perfect examples of what Mushrooms should be for table use. Half-a-dozen dishes were shown of various sized Mushrooms. Mr. Eckford showed a new Potato, the Nugget, a rather handsome round variety, for which he received a vote of thanks.

A good collection of home-grown Oranges came from Messrs. Rivers and Sons, Sawbridge, which the most noteworthy of which were St. Michael's (very fine), Tangerine, Egg, Gustain, Bittercoot, Bijou, Achilles, Maltese Blood, and the small Lime, all of which seem excellently well suited for hot-house culture.

Scientific committee.—*Hylecatus dermatoides*.—Mr. Pascoe showed a male and female specimen of the British beetle, and alluded to the report that it feeds on the wood-boring species, but does not itself bore the wood. Mr. MacLachlan remarked that it was an open question whether this idea was true.

Coltsfoot in blossom.—Mr. MacLachlan observed as a proof of the mildness of the season that he had procured this plant flowering between Lewisham and London.

Sobralia macrantha, leaves of.—Dr. M. T. Masters exhibited leaves of this plant in a blackened state. They were received from Mr. Douglas, of Ilford, Essex. It was thought to be due to an overdose of tobacco-water. Further information was requested to be asked for.

Glastonbury Thorn.—Dr. Masters exhibited a specimen of this plant received from Mr. Boscawen with buds and in fruit. It was flowering later than usual. He also showed a variegated sport of the common Laurel from the same gentleman.

Willow species.—Some specimens of new species of *Willow*, e.g., *Salix holosericea*, &c., were received from Dr. Fraser, of Wolverhampton. It was suggested that they were accidental importations. They were forwarded to the Kew herbarium.

Papaya cundina marcescens.—A fruit of this plant was received from Mr. I. A. Henry, of Edinburgh. It was raised from seed sent by the late Prof. Jameson, of Quito, and had been fertilised by the late Prof. Dickson. It is described as "very fragrant, and makes when boiled or in clarified syrup an excellent sweetmeat."

Nitrogen in worm casts.—Dr. Gilbert described some experiments he had made in order to ascertain the proportion of nitrogen in worm casts, which latter, according to Mr. Darwin, amounts to between 17 and 18 tons per annum per acre of 2 in. in depth. He collected the nests of two or three weeks' formation, and found by analysis of the dried mould that it contained 35 per cent. of nitrogen, which is higher than that of arable land, but not so rich as highly manured kitchen garden mould. Ten tons per acre would therefore yield 80 lb. of nitrogen per annum, or more than double that of ordinary meadows without manure. The conclusion was that no gain accrued to the soil, except from what the worms brought up from below, as by trenching.

Plants exhibited.—*Columna Kalbreyeri*, with satin-like, pendulous, second leaves and yellow flowers, from New Grenada, was exhibited by Messrs. Veitch. It received a botanical certificate. *Teophyllaea cyanocrocos*, from Chili.—This had flowered previously at Kew. It was brought by Mr. G. F. Wilson. A small bulbous plant, with a slender tube and globular perianth of lilac colour, brought by Mr. Maw from Mount Ida, was exhibited by Rev. H. H. Crewe. It was referred to Kew for identification and name. *Lygodium Fosteri*, a fine specimen of a climbing Fern, from Mr. Green, near Colchester. *Draecena Goldiana*,

flowering for the first time in this country, with variegated foliage, received a botanical certificate.

Lecture.—A finely grown specimen of *Lapageria*, another of *Bignonia*, and a Fern (*Lygodium Fosteri*), furnished material for remarks on climbing plants. Now the method of climbing by twiners was a modification of the property of "circumnutation" or "bowing around" a property of growth, and which occurs in all parts of plants, but is variously utilised according to the nature of the organ, whether the radicles of seedlings to enable them to find lines of least resistance for penetrating the soil or runners to aid them in surmounting obstacles, or a stem-twiner, as in the above plants, for climbing. The lecturer called attention to other methods of climbing, as by tendrils in *Bignonia*, Vine, Pea, &c., pointing out that here, as is unusually the case, Nature can utilise various organs for one and the same purpose whenever requisite. Bud variation furnished matter for remarks in reference to a specimen of *Primula sinensis*, a double pink form, called Lord Beaconsfield, one which afforded a truss of double white flowers, which had been called White Lady. The lecturer alluded to the *Chrysanthemum* as a plant particularly liable to sport many new varieties, having been thus raised before seed was procured (about the year 1835) from the plant. He alluded to the fact that Peaches may bear Nectarines, and vice versa, and that even a single fruit may be half Peach and half Nectarine. Variegated foliage, as in a Laurel exhibited, may occur on an otherwise green plant. And it was the business of the horticulturist to fix these sports and establish them. The lecturer then alluded to sporting from seed as another method of raising new forms, illustrated by examples of Azaleas shown. It often happened that seedling sports were not constant when again sown, but a variety of Chinese Primrose of crimson colour, called Dr. Denny, had proved to come true by seed with Mr. Cannell, who exhibited a specimen. A new variety, "Holborn Gem," with an approximation to blue tint, had received a first-class certificate on the present occasion. It was sent by Messrs. Carter. As a remarkable illustration of a plant known to resist what might be deemed injurious conditions, the lecturer remarked that *Lapageria rosea* grows near arsenic and copper mines in Chili where other plants cannot thrive. He alluded to the fact that several plants imbibe salts of zinc (*Viola calaminaria*), copper, &c., but whether these meats were of any physiological value or merely accidental had never been determined.

OUR readers have already been informed that the well-known establishment of Mr. L. Linden, of Ghent, has been formed into the *Compagnie Continentale d'Horticulture*. At Ghent they are now building a large range of houses on a new principle, and in Paris also building extensive houses and winter gardens. In the south of France they have bought the Ile du Levant, one of the principal of the Iles d'Hyères, and are planting thirty hectares of Palms, *Draecenas*, *Araucarias*, *Clivias*, *Bamboos*, &c., and *Roses*, *Tuberoses*, *Violets*, &c., are also to be grown there. They have large nurseries in the neighbourhood of Hyères.

Garden Index.—J. K. D.—The index is being prepared, and will be published, we hope, within the next three months.

Names of plants.—M. F.—Apparently *Hedera conglomerata* (clustered Ivy).—C. M. O.—1, *V. hirtum*, a plose form of the common *Laurustinus* (V. Tinus); 2, *V. lucidum*, the Algerian variety of *V. Tinus*.—W. Neill (*Zygopeltis*).—The flower had gone "too far" for us to judge of it.

COMMUNICATIONS RECEIVED.

C. C. D'H.—W. T.—A. J.—A. H. R.—F. C. B.—J. C.—W. P. R.—J. S.—W. E. H.—G. J.—W. W.—C. C. & C.—E. H. G.—Tampet—J. C.—G. H.—T. L.—T. D.—R. L.—W. T.—A. D.—W. B.—H. J.—S. W.—K.—W. G.—F. W. E.—W. A.—J. G.—W. F.—F. W.—T.—G. J.—W. H. O.—R. C.—Mac—J. C.—T.—P.—F.—S.—B.—W. L.—G.—P.—R.—G.—J.—W.—H. A.—W.—W. G.—R.—M.—R.—O.—G.—J.—C.—G.—P.—R.—O.—G.—J.—M. C.—G.—L. M.—J.—H.—C.—B.—J. S.—W.—C. M.—O.—G. C.

No. 531. SATURDAY, JAN. 27, 1882. Vol. XXI.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

CONSTRUCTION OF CONSERVATORIES.

This is a subject of importance to the employer, the architect, the gardener, and the horticultural builder. Each has his own peculiar interest at stake, and it is only by a proper combination of all these interests, together with a correct appreciation of the uses of a conservatory, that we can hope to satisfy to a moderate degree all the classes just named. First we will glance at the object and uses of a conservatory, then we will apply our remarks to the exterior and interior of that building.

The main object of a conservatory is to afford pleasure and interest to human beings, not to grow plants and flowers. The main object of a growing house is to grow plants and flowers only. This may seem a rather curious statement, but it is perfectly true, and upon giving it a moment's consideration it will be perfectly clear. Thus we have forced upon us at the outset that a house in which plants are grown is perfectly separate and distinct from a show house. A misapprehension of this may often lead us into a scrape. For instance, a gardener may conscientiously, but unjustly condemn a conservatory simply because it does not fulfil all the conditions of a growing house; whilst an architect may as conscientiously, but as unjustly condemn another conservatory simply because it does not fulfil all required architectural conditions. Still, there exist many cases in which it is necessary that growing and showing be accomplished in the same house (as mentioned by "Peregrine" in your issue of Dec. 10, 1881). In such cases a compromise must be effected, for assuredly if all the conditions of growing be complied with, the conditions of showing must suffer, and *vice versa*. As a conservatory is usually connected with the dwelling house, and its main object is to afford pleasure and interest to the inmates of that dwelling house, it should certainly form one of the reception rooms—a floral apartment—covered garden lounge; any name you like which embraces the two ideas of an apartment and a garden. So much for abstract ideas. Now let us endeavour to crystallise these into concrete details. In a house in which plants are grown it is generally essential that they be not at a great distance from the glass, therefore low eaves (say 5 ft. high) and interior high skeleton-tiered stages may be not only desirable, but necessary. In a conservatory the eaves have frequently to be from 9 ft. to 12 ft. high, and interior staging entirely dispensed with. Under such circumstances it makes but little difference whether the roof be a ridge and furrow, a span with lantern, or a dome. In a house in which the plants are grown the construction may be of an absolute cobweb character if desired. In many conservatories architectural effect demands that the scantling be heavier, and that ornamentation in spandril traceried work, ribs, &c., causing a certain amount of obstruction to light, exist. In a house in which plants are grown the path area is cut down to the smallest possible convenient space. In a conservatory it is often advantageous to have ample lounging, group-sitting, and talking space. In the house in which the plants are grown it may be necessary to have an atmosphere so humid and hot that it would be considered, by ladies at any rate, painful to be endured in a conservatory.

Looking at this important subject from every possible point of view, it appears that a conservatory, whether it be small or large, whether it be constructed in connection with a suburban villa, a country house, a nobleman's mansion, or a royal castle, should embody as many of the following points as possible: It should be constructed in harmony with the adjoining or surrounding architecture. A visitor should not be allowed for a moment to imagine that the mansion had been the work of a great architect and that the design for the adjoining conservatory had emanated from a local nursery. The vertical parts should have as large panes as possible, and the roof should not afford any more obstruction than is necessary. Give plenty of light. Small panes, traceried panes, or even lead glazing, may often be judiciously employed above the transom without arresting too many solar rays. Ornament, where used, should not be strained. Interest and pleasure should be excited by the proportion and the broad lines of a conservatory rather than by meretricious ornament and fussy detail. When will the world recognise that art and simplicity do not form an irreconcilable combination?

Leaving the exterior and coming to the interior, I would make the latter as natural as possible. Throw away the hideous stages, hide the pots, and let us see natural beds and banks of foliage and flowers massed with artistic irregularity; in fact, displayed much as if they were growing in a natural fashion. If you object to see bare soil, cover it with some living green carpet. Have creepers by all means, but do not make the mistake of letting them shut out too much light from either roof or vertical parts. Hide brickwork, wherever you can, by something green. Do not have formal paths, but just a convenient space for a small table and a chair or two, so that a walk in the conservatory does not necessitate a procession in single file. The lounging, sitting, talking space may be paved with tiles, or, better still, marble mosaic, or perhaps better still, especially if the space be large, a well-made hard path of ordinary gravel over which is sprinkled, fairly profusely, small crushed shells. Do not have an unbearably moist, high temperature. Remove to another structure plants which may require such a temperature rather than sacrifice the comfort of those who may desire to enjoy continuously the conservatory. Let the normal doors of communication between conservatory and dwelling-house be so fitted that when they are shut, the necessarily moist plant atmosphere does not enter the dwelling apartments and ruin the furniture.

F. A. FAWKES.

WINTER BLOOMING PELARGONIUMS.

"A MANCHESTER GARDENER" has been fully republished to as to the varieties of Pelargonium for winter blooming, but I think a few words more might be an advantage not only to him, but perhaps also to many others. From the fact of his getting so few out of half-a-hundred varieties to bloom well, I cannot but think that he has not attended to the proper preparation during summer of the plants for winter blooming, and this is of far more importance for success than the selection of varieties. My own experience of them as winter bloomers is that nearly all are good, if suitably prepared. There are some few which indeed are exceptionally good, and of which I will speak presently, varieties which will do well under far less favourable conditions than your correspondent speaks of. With his light house kept at a temperature of 50° he should be able to grow and bloom well almost any variety in existence, but to bloom them well in winter they must have had suitable preparation during the previous sum-

mer, or growth will be the result of such a high temperature instead of bloom. In the single varieties the plants should be struck early in the previous spring, at the end of May removed to a cold pit, the pots plunged in coal-ashes; the situation must be exposed to the full sun, and after midsummer the lights of the pit should be entirely removed. The soil should be light loam, with a very large admixture of sand. Feed liberally with manure water during the summer, and the most regular attention must be given to watering. Pinch off every flower bud as soon as it appears during the summer season, and let the plants remain in pots small in proportion to those which would be used for summer blooming. Do not go beyond 5-in. or 6-in. pots; the latter size only for the strong growing sorts. For the double sorts two-year-old plants will be found more satisfactory, but in other respects treat them the same as the single kinds. If your correspondent will treat his plants in this way I do not think he will find that many of them will fail to bloom. The constitution of the plants must be made during the sun of summer and stored up for winter use; that is the secret of success. The sorts to which I myself would give preference are as follows: *Singles*.—Col. Holden, Lady Bailey, Commander-in-Chief, Charles Schwand, Lizzie Brooks, Sophie Birkin, Mrs. Strutt, Aida, Lord Gifford, Lady Emily, Madonna, and Vesuvius. *Doubles*.—Emily Laxton, Louis Boutard, Guillaume Mangilli, Candidissimum plenum, F. V. Raspaal, and Sergt. Hoff. And now a word to those who have only one greenhouse, which ought not to be kept at a temperature of 50° in the winter months. The first four named single varieties and the first double may be bloomed very fairly all through the winter in ordinary greenhouse temperature; if prepared in the way I have indicated they seem *par excellence* winter bloomers. I have a plant of Emily Laxton trained on a wall at the back of my greenhouse (only heated to keep out frost and damp); this is in bloom ten months out of the year, and is the only double variety I know that will bloom well with such a small amount of artificial heat.

Amwell, Herts.

C.

SEEDLING AURICULAS.

In reply to "An Enquirer" about the planting out of seedling Auriculas—now large plants in boxes under glass—I should think they would do well if planted out, and the better the more common the strain may be. It is not the mere transplanting, done with ordinary care, that is likely to hurt them at a time like this when they are just springing again into active growth; it is mainly a question whether they are of the varieties able to face, without ruin and defacement, the wet and windy weather of our spring months. In the rare case of their being seedlings from the standard florist kinds, some of them will have white mealy leaves, and all of their flowers will be more or less mealed on the surface, so that the first shower of rain would play havoc with that beauty, and besmirk the velvet of their petals with a raw and watery paste.

It would, therefore, be a pleasure, very ill secured, to bloom such as these in the open ground without means overhead for keeping the flowers dry. If, however, they are thorough-bred "alpines," which are large, handsome, shaded, velvety flowers, quite free of meal, they will be very pretty in an open bed; but I would advise something like green moss being placed on any bare ground between the plants, or the rain will again ruin their velvet with splashes of sand, grit, or mud, a defilement which is scarcely preferable to paste. But living Moss, newly gathered, is apt to contain snails of divers sorts and sizes; and if more Moss be required than can be conveniently picked over by hand, it may be dipped in some

large vessel of warm water, not hot enough to scald the Moss, but sufficiently so to dislodge the slug tenantry. Cold water with a little lime or salt in it would do this, but then it would kill too much.

In a batch of *Auricula* seed only sown last spring, I should say a number of the plants are not large enough to flower yet, though it is wonderful how small a seedling will bloom. These I think it would be greater gain to put back into the empty boxes than to plant out while so small. A snail of medium size and large appetite would eat such a plant over in a night; or a large earth worm, feeling around for a stray leaf, or some small piece of vegetable refuse wherewith to cork up the orifice of his hole by day, would draw in a young plant as an "operculum" thereto, and consider it a very effective front door. The aspect and soil, more particularly the former, are matters for consideration in planting out these seedling *Auriculas*. They will do best, where many flowers will not, in a clear north aspect, and this virtue should be turned to full account if possible. The plants will enjoy the shade and coolness in summer, be there more than anywhere else out of the beat of red spider, and continue brighter and longer in bloom in the spring.

For soil they will best enjoy a strong, cool loam, to which I would not add any manure. If clayey, I might dig in a little well-rotted leaf-mould. If very light and sandy, I should try to stiffen it, but I have seen such *Auriculas*, as I fancy, your correspondent has done well in what is known as "any good garden soil." I would recommend him to sow *Auricula* seed as soon as ever it is ripe—say the end of July. There will be many young plants up in a week or ten days, while another crop will follow in spring, and all the earlier ones he will find make blooming plants much sooner than those that come up or are sown in spring. F. D. HORNER.

Kirkby Malzeard, Ripon.

The best thing "Enquirer" can do is to plant his *Auriculas* out on rockwork, constructed according to the principles enunciated by various writers in *THE GARDEN*, for which I will refer him to the very able articles of Mr. Harvey (p. 664), and of Mr. Hatfield (p. 596) in Vol. XIX. I assume that the *Auriculas* to which he refers are alpine. The name indicates the most appropriate and natural way of growing them. I have an immense number on rockwork, many of them now old plants, and the amount of flowers which they produce is astonishing. About this time of the year they lose their lower leaves and look rather woe-begone, revealing considerable length of limb, and my practice is to mix up some good compost, and cover every one of them up to the lower leaves. Nature does this with *Auricula alpina* on the slopes of the Alps, carrying down every season with the melting snow, soil, grit, and peat, and so covering up their long-leggedness. I have used *Auriculas* as edgings, but in no case have they pleased my eye so much as when surrounded by rocks. They may be planted in any position, high or low, in fissures, or on slopes, and in every case they will do well. As *Auriculas* are spring flowerers, he could obtain another display by making his rockwork so large that he could plant any of the following fashionable bedding plants between, and perhaps it will be a new sensation to him and to others to grow bedders on rockwork. I have tried it, and with good results. Any varieties of dwarf Lobelias answer admirably, and planted one season will seed themselves and come up every summer. *Pelargoniums* would also be very suitable if dwarf or of the Ivy-leaved section. *Calceolarias* will make a fine show. *Verbenas* are the best plants in existence for rockwork. Even the ubiquitous, but invaluable Golden Feather is wonderfully effective in the shape of single plants or small patches. Any dwarf growing annuals would also answer for a second flowering. A very quiet, but beautiful, effect might be produced by planting any of the mossy Saxifrages between. An accidental combination of this kind has been formed here of *grœnlandica* and *Auriculas*. The Saxifrage must be kept within

reasonable bounds, or it will smother the *Auriculas*, though it might be allowed to trespass so far as to cover their long naked stems.

Llandegai, Bangor.

EDWIN JACKSON.

EDITOR'S TABLE.

GERANIUM ANEMONIFOLIUM.—Miss Owen sends the large foliage of this large half-hardy *Geranium*, "which for its foliage alone is well worth growing. I have not yet seen its flower. So far this winter it seems to be quite hardy. The leaves are beautiful in vases."

THE CORNISH MONEYWORT (*Sibthorpia europæa*).—Miss Owen also sends us this graceful native plant, and praises it for its pretty way of carpeting the ground and creeping over rocky places and in moist corners. I have stuck it in against a moist bank in a deep Surrey lane, where some botanist will, no doubt, be one day happy in finding it in a new locality.

ERICA CODONODES.—A broom-like bunch of this pretty Heath from Mr. Geo. Paul's nursery at Loughton, gathered in the open quarters. We hear it said that Mr. Paul has lately devoted a good many acres to a collection of hardy flowers, and we are glad to hear it. Some of the big houses are asleep about the question, and do not see its importance, nor consider the enormous variety and extent of the things that come into it.

RHODODENDRON NOBLEANUM.—Mr. Geo. Paul sends this from his pleasant nursery at High Beech, and it reminds one that all the happy localities are not so very far from this sooty city, where the leaves of *Rhododendrons* curl up in winter as if burnt. Shall we live to see evergreens fresh in London through the ending of the smoke waste? Alas! for the massacre of the innocent evergreens planted every year by intelligent gardeners for confiding Londoners; they die the year after, or remain in seedy mourning for a few years.

DOUBLE PURPLE PRIMROSES.—These pretty little plants come to us from Messrs. Rodger, McClelland's nurseries at Newry. Are they more plentiful in certain parts of Ireland than elsewhere? One would like to see the fine old high-coloured "doubles" really well grown, say as well grown as we sometimes see the double white in England—that is, a broad mass of flowers.

JUSTICIA CALYTRICHA.—A pretty winter flower is this Brazilian plant sent by Mr. Hans Niemands, of Edgbaston. It has loose heads of canary-yellow blossoms, enriched by hair-like calyxes, which give it a peculiar aspect. It is a shrub, and the foliage, which is very deep green, forms a striking contrast with the flowers. A stove plant whose merits deserve to be better appreciated than they are.

A JANUARY CHRYSANTHEMUM.—Messrs. Watson & Sons, Marlborough Nursery, Islington, send flowers of a lovely white *Chrysanthemum* that they have named Christmas Number. It is like the beautiful Elaine that opens in the early days of November, and appears to be equally fine in every way. To have fresh blooms of such a charming white *Chrysanthemum* on January 18 is a real gain, and the sooner it becomes common the better. No other sort that we know of is so fine as this, and we only regret that its raiser did not christen it with a shorter and prettier name. Our language is rich in simple and pretty names, and if ours is exhausted, we can call on

others. Such names as "Glare of the Garden" applied to an innocent plant make one shudder.

MR. ROBERT GREENFIELD, of the Priory Gardens, Warwick, sends us a beautiful crop of large single *Cinerarias*. They are varied and brilliant in colour, and of the usual mixed varieties. Many of the blossoms are quite 2 in. or more across. We admire these, but, as we have often said, we should like to see instead of the eternal variegation some definite strains, distinct in their separate colours—fixed races, so to say.

ALGERIAN IRIS.—From Mr. Moore, of Glasnevin, come some good blooms of the handsome *I. stylosa* or *unguicularis*, as it is sometimes called. We have before alluded to this *Iris* as being one of the loveliest open-air winter flowers, and these blooms are even finer than those we had from a Surrey garden. With it comes the pretty *I. cretica*, a near neighbour of *stylosa*, but which occurs farther east. It, too, is a stemless kind, with narrow leaves and moderate-sized flowers of a deep mauve, three of the petals being beautifully pencilled with purple on a white ground.

SELAGINELLA KRAUSSIANA.—Miss Owen writes to say that she grows this plant as a green turfy carpet in the rockery, and that last winter very little of it was killed. This year it is quite fresh. The plant we call by this name is the one that used to be generally grown under the name of *Selaginella denticulata*. We have noticed it ourselves naturalised in a lawn near the sea in Wales. Miss Owen's specimens are luxuriant—too large for the neatest kind of turf carpet. She writes: "The two plants (*Selaginella* and *Sibthorpia*) grow too luxuriously to be a good carpet for very small Ferns. *Campanula hederacea* could not hurt the smallest Fern, nor could the evergreen *Arenaria balearica*, nor *A. multicaulis*. I have not yet tried these Sandworts in shade. Is *A. multicaulis* a synonym for *A. balearica*? It was given to us by the late Mr. Niven under the former name, but it seems very like a still smaller form of *A. balearica*."

A BEAUTIFUL LEAF.—In September Mrs. Davidson sent me some foliage of *Heuchera Richardsoni*—a plant with various flowers. Then the leaf was fresh and beautiful with its curious velvety olive green and good form. Mr. Goldring took some of these leaves, placed them in his room, and was interested to find they did not seem to decay quickly. Then he placed them by themselves, and brought me a perfectly fresh leaf three days ago, with all its original beauty of colour. This is a most interesting fact, and not without its value to those interested in room decoration. There are no more beautiful leaves than those of these fine hardy plants. Since the leaf, now in its fourth month since taken from the plant, has come into our office again it has begun to get a little yellow on the edge. If more instances of 'this sort should be found, what is to become of artificial leaf makers? Well, the sooner they are gone the better. Whether the leaves gathered at other seasons would be equally enduring it would be interesting to know. Probably the firm autumn leaves would be best to keep, and they come in at a season when leaves are the most valuable.

Vegetation not too forward.—Notwithstanding the mildness of the season, I do not think that our Snowdrops will be in full flower before they have usually been, although they looked in the autumn as if they would be fully expanded by Christmas. They are at present (Jan.

16) only showing the white tips, and the month of February will be well in before they are fully in bloom. Fruit buds, too, show but little signs of moving; what has given the winter such a vernal aspect is due to there not having been frost sufficient to arrest growth in plants usually cut down long before this time, such as Marigold and other annuals, and many of the summer bedding plants; while the usual winter flowers, such as Garryas, Chimonanthus, &c., have flowered beautifully. A little cold weather now will keep fruit buds right, and the season will show but little advance on ordinary ones.—J. G., *Linton*.

ORCHIDS.

WINTER-FLOWERING ORCHIDS.

At Messrs. Veitch's, Lælias, including *L. albidula*, *L. autumnalis*, and the different forms of *L. anceps*, one specimen of which bears five whips, are just now unusually fine. A very strong plant of *L. autumnalis* has eight flowers on a spike. *Oncidium tigrinum* bears twenty-four flowers on a long arched raceme; *O. Forbesi*, with its rich brown ground-coloured flowers, is also in bloom. This is another good winter flower. *Masdevallia tovarensis*, which produces its pure white blossom freely in the dull days, is grown here in quantity; as are also the ever-flowering *Odontoglossum*, *O. crispum*, *O. Halli*, *O. Pescatorei*, *O. crocidipterum*, *O. gloriosum* (the best coloured variety I have seen, a distinct bright yellow), and *O. pœnitens*, the last named in the way of *O. hystrix*. Amongst numerous *Cypripediums* are many forms of *C. insigne*, *C. Maulei*, *C. Schlimi*, *album*, *C. selligerum*, and *C. euryandrum*, both seedlings raised by Mr. Seden. The old, but now very scarce, *Epidendrum macrochilum* album is producing a couple of strong spikes. This is a distinct and handsome Orchid, the flowers of which last in fresh condition for a very long time. *Trichosma suavis*, in appearance not unlike a small *Coleogyne*, has ivory-white sepals and petals, and a yellow lip edged with reddish crimson. It is very sweet, and succeeds with cool treatment. A grand variety of *Lycaste Skinneri* is in bloom; its flowers are very highly coloured, the lip being an intense ruby crimson, and the whole inner surface of the flower suffused with the same colour. Of the pretty *Angraecum citratum*, quantities are pushing up their spikes, which will shortly look like strings of white flowers. Fog does not agree with *Phalenopsis*, and this disagreeable condition of the weather, although less prevalent than usual this winter, has yet been sufficient to destroy all their flowers that had arrived at a certain stage of growth, but hundreds of others are again coming on. *Calanthes* are more affected by fog than most Orchids. The beautiful *C. bella*, a hybrid between *C. Turneri* and *C. Veitchi* is just now bearing some very large spikes.

Frequent mention is made of the interesting work that has been long carried out here in Orchid hybridising, but few are aware of the extent to which it is being pushed. Two houses are almost filled with plants resulting from cross fertilisation. Here are over 2000 seedlings raised by Mr. Seden, many of them not yet flowered, and to these, it is needless to say, an unusual amount of interest is attached. Seedling raising in the case of Orchids is a slow operation, or, more correctly speaking, the seedlings under the best treatment are much longer in coming to a flowering state than other plants. From six to ten years is no unusual time to elapse between the seed vegetating and the plant arriving at a blooming condition. T. B.

Dendrobium aureum.—If "W. G." will look up the history of this plant he will find that the name *D. heterocarpum* was given to Dr. Lindley's *D. aureum* by Wallich, and therefore, although the name generally accepted in gardens is the former, the proper name according to botanical rule is *D. aureum*. This *Dendrobe* is one of the oldest of our Orchid pets, having been introduced

by Loddiges nearly 50 years ago. There are several acknowledged varieties of it founded mostly on the differences in the colour of the flowers—characters which in this species at all events, are not very reliable, as temperature and age have considerable influence on the colours. We have now several plants in flower, and it is very interesting to note the change from almost white to quite an orange tint, which takes place after the flowers have been open about a month. The same thing may be observed in the flowers of *D. tatonianum* and several other *Dendrobs*; also in *Ansellia africana* the deepening of the colours is very observable.—B.

ORCHIDS IN AMERICA.

Vanda cœrulea Greyi.—I herewith send you a dried flower of a variety of the blue *Vanda*, which is now flowering in Mr. Corning's collection. It is, as you will see, of good round form, and measures nearly $\frac{1}{4}$ in. across, and what greatly enhances its value is its being of a bright blue colour, the deepest we have yet seen. The lip is of a darker shade, and has three longitudinal veins of white, very prominent. Its varietal name is *Greyi*, in compliment to Mr. Corning's gardener.

Oncidium varicosum Rogersi.—I also send you a flower of the true variety of this *Oncid*, the lip of which, as you will see, measures fully $\frac{1}{2}$ in. across. This variety, I believe, is very scarce, though there are numbers of plants under this name in different collections, as also there are others here from different nurseries, but they seldom exceed $\frac{1}{3}$ in. This variety came from Messrs. Veitch & Sons, of Chelsea. F. GOLDRING.

Albany, N. Y.

Orchids at Blackburn.—We learn that the fine collection of Orchids formed at Fenniscowles by Mr. Yates will shortly be dispersed at Stevens'. The collection contains among others fine examples of *Cymbidium eburneum*, 3 ft. through; *Cattleya Dodgsoni*, with seven breaks; also of *C. Warneri*, *C. dolosa*; *Odontoglossum coronarium*, with seven breaks and about to flower. There are, moreover, *O. Andersonianum*, *O. cirrhosum*, &c., *Masdevallia tovarensis*, with 37 flower-spikes; *Sophronitis purpurea*, and *S. grandiflora*, and *Vanda Cathcarti*, all of which, with the rest of the collection, are in the best of health, and on the whole well grown.

BOOKS.

THE ROSARIAN'S YEAR-BOOK.*

This useful annual contains this year a photographic likeness of the Hon. and Rev. J. T. Boscawen, Vice-President of the National Rose Society, and a short account of his gardening career in Cornwall; also papers on the enemies of the Rose, Roses in the Perthshire Highlands, Roses and Rose shows, our flower show, Rose grubs, Maréchal Niel as a greenhouse Rose, the weather of the past Rose year, the Rose election of 1881, the Rose in that year, and general remarks as follows on—

DECORATING GARDENS WITH ROSES.

BY J. E. EWING.

How to have Roses blooming for as long a portion of the year as possible, and in all sorts of positions, is a matter worth the serious consideration of almost every owner or occupier of a flower garden throughout the country. There are two classes of Rose growers, besides those who grow for sale; the one have for their principal object the production of blooms for exhibition, while the other grow them for the purpose of decorating their gardens and the production of flowers for cutting. Now there are so many families of the Rose, and so many varieties belonging to each family, that suitable Roses may be found for

almost all kinds of uses and positions in a garden where flowers of any kind can be used. The following are some of the uses to and positions in which Rose plants may be put in a garden, viz., beds, borders, shrubberies, poles and pillars, arches, arbours; walls, north, south, east, or west; hedges, screens, &c. Before entering into any particulars, however, as to the different kinds of Roses adapted to the various purposes just mentioned, I should like to make a few remarks on the more or less important subject of soil. I say "more or less" here, because if only the commoner kinds of Roses be grown, the kind of soil is a matter of small importance. The old summer blooming climbing Roses belonging to the Boursault, Ayrshire, and sempervirens classes, as well as most of the varieties belonging to the Gallica, Hybrid China, Hybrid Bourbon, Austrian Brier, and many other summer blooming families are not at all particular in the matter of soil, being able to thrive and grow in that of almost any description, although, of course, they thrive best where the soil is good. Where the best kinds of continuous blooming Roses are required to thrive and repay the cultivator, there the soil must either be naturally good, or adapted to the purpose by artificial means.

The kind of soil in which the Rose most delights is what is called a deep, rich loam; that is, one which is in its composition about midway between a stiff clay soil and a blowing sand, and contains a considerable percentage of animal and vegetable debris; it should be from 2 ft. to 3 ft. deep, and rest on a moderately porous subsoil, one which will allow surplus wet to sink away, for though Roses like plenty of moisture, they cease to grow altogether if their root-run remain saturated, or super-saturated for any length of time. In such a soil as this, well cultivated, little or no difficulty is experienced in getting all kinds of Roses to succeed well; artificial waterings will seldom be necessary, because such a soil is sufficiently sponge-like, or retentive of moisture, to hold sufficient water for the wants of the plants for a long period. As above suggested, there are very few gardens in which the soil is so unsuitable that no Roses will do well; but, on the other hand, there are very few gardens in which the soil is so naturally suited to the wants of the Rose that some preparation or other is not advisable, or even necessary, to ensure the successful cultivation of the better kinds of Roses. To begin with, stiff clay soil, which in most instances require something in the way of drainage, as well as to be made previous to war, and be brought to a condition in which the roots and rootlets of the plants can freely permeate it. It should be broken up by trenching, or double digging, 2 ft. deep, if possible, and during this operation have thoroughly mixed with it such light materials as may be available; any or all of the following are very useful in adding to the fertility of heavy clay soils: road-silt, such as the rain washes down by the sides of roads; sand from pits, from the sea-beach, or from river beds; river or pond mud, especially if this have been previously thrown in a heap with lime partially slaked; sifted cinder ashes, wood ashes, charred garden refuse, brick and mortar rubbish, rotten rubbish-heap, leaf-mould, old potting soil, and in some cases chalk broken fine, besides, of course, some rotten stable or farm-yard manure and nightsoil. Exposure as much as possible to weather, especially alternate frosts and thaws, also greatly assists in the amelioration of naturally unworkable clay soil. Autumn is the best time to transplant Roses, commencing about the time that deciduous trees are shedding their leaves, but it is far better to defer planting till the spring than to plant in unsuitable soil. No soil requires more laborious work to make it suitable than stiff clay; but, on the other hand, few soils will so well repay the labour. The opposite kind of soil to stiff clay is that of a sandy or gravelly nature, with little or no adhesiveness in it, and which lets the water pass through too quickly, so that moisture is only retained for a very short time after rain has fallen. Such soils as this naturally feel the effect of

drought very quickly, and are also much more quickly affected by variations of temperature than soils which have clay in their composition. To effect their improvement, applications of clay are most permanent, and in addition to ordinary manures, bog peat, leaf-mould, sods of turf, decayed garden rubbish, chalk, nightsoil, and soot are useful, soap-suds and slop water being especially valuable as a liquid fertiliser. If a good dressing of these materials be applied a year before planting the Roses, it will be all the better, as the cultivating the soil for a vegetable crop will help all the more thoroughly to incorporate them with it. Having, or having made, the soil suitable, the next thing is

Planting the Roses.—One of the most effective methods of obtaining decorative effect from Roses is to plant them in beds, and the kinds needed are those which are both free and continuous bloomers, quantity of bloom and a continuance of it being of more importance for this purpose than mere size, or even form, of individual flowers. The Common and Crimson Chinas, La France, and Mrs. Bosanquet are types of almost perfect bedding Roses. The old Gloire de Dijon again is a Rose unsurpassed by any other of its colour as a bedder; indeed, this variety cannot be put out of its place, for wherever and for whatever purpose Roses are grown, there "The Gloire" will be found holding a leading position. Bedding Roses should throw their blooms well up above the foliage. Alfred Colomb and John Hopper are admirable examples of fine, free-blooming Roses, which produce flowers boldly thrown up to view. To obtain the greatest quantity of bloom as little pruning as possible should be resorted to, but some pruning is absolutely necessary; weak or unhealthy wood should be removed, and wood which shows any sign of exhaustion from age should also be cut out, while the vigorous young shoots which healthy Rose bushes are constantly pushing up from the base should be encouraged to the uttermost. The time to prune is in spring, before the young leaves have pushed sufficiently to hide in any way the work to be done. With most kinds used for bedding the "pegging down" system must be more or less adopted. Very dwarf growers will require but little pegging down, but rampant, vigorous kinds, like Gloire de Dijon, may have their strongest shoots brought right down to the surface of the bed at pruning time; the weak wood being all cut away, flowering shoots will emerge from every eye on the shoots left, and the whole surface of the bed may by these means be well covered with flowers. By this pegging down system the height of the plants all over the bed is under control, and can be regulated; another advantage is that, where a plant may happen to have died out, a branch from its neighbour may be made to cover the space and supply the deficiency. Many of the shoots pegged down, too, will probably send out roots, and give in the autumn, if detached from the parent plant, a supply of useful young plants on their own roots.

Standards.—Although, as a rule, dwarf Roses only are used for bedding, standards may be occasionally introduced for the purpose with advantage, their height, compared with the size of the bed, being of course taken into consideration. Tall standards in a small bed do not give a pleasing appearance. Standards may be used for the centres of large beds, half-standards being placed next them, with dwarf standards next, and surrounding them dwarfs, so that when the plants are in leaf no bare stems will be visible. Standards of dark coloured sorts also give a good effect when planted in a bed of dwarfs of a light-coloured variety, and *vice versa*, and in this case should be of sufficient length of stem to carry their heads well clear of the foliage of the dwarfs. Standard Roses should never be planted in positions where they are exposed to high winds, as under such circumstances they are liable to become ragged and unsightly. The same remarks which apply to beds of Roses apply also to borders, which are simply beds of long continuance.

Roses for shrubberies.—In planting Roses in shrubberies it is obvious that their roots will

have, to a certain extent, to struggle with the roots of the shrubs for the sustenance and moisture contained in the ground; this being the case, no kinds are suitable for this purpose but such as have a strong constitution and a vigorous habit of growth. Some Roses adapt themselves with great facility to positions of this kind, and when once established, require no better treatment, in the way of enrichment of the soil, than the shrubs receive. The hardy old summer-blooming Roses hold their own in shrubberies well, and though their blooming season is short, while it lasts it is gorgeous. The most rampant growers will require some support for their shoots, such as can be afforded by strong stakes, poles, or branches of trees fixed firm 'y' into the ground; no pruning, but what is needed to cut out weak or exhausted wood, or to keep the plant in bounds, should be accorded to them. Amongst the lower growing shrubs the most vigorous of the continuous bloomers may be introduced. Kinds such as the Common and Blush China, Gloire de Dijon, and Cheshunt Hybrid, Boule de Neige, and John Hopper are very suitable. For these kinds, except where the ground is very rich, some artificial fertilising will be necessary, and in soils liable to suffer much from drought, keeping the surface well mulched will be a great help.

Climbing Roses.—For poles, pillars, arches, arbours, walls, sides of houses, and high buildings, &c., only those Roses are suitable which have more or less of what is called a climbing habit of growth. I say what is called a climbing habit of growth, because, strictly speaking, there is no such thing as a climbing Rose. Roses do not climb or cling to anything in the way that such strictly climbing plants as the Vine, the Honeysuckle, and the Ivy do. Roses which make long rambling growths, whose shoots are unable to stand up without support of some kind, these are the kinds which do duty as climbers; before determining on the kind of climber to plant, however, the height the plants are required to attain to must be considered. Most of the vigorous Hybrid Perpetuals and Teas may be relied on from 8 ft. to 15 ft., if the soil be good, and on warm sheltered walls 4 ft. or 5 ft. higher. The extra strong growers of the same classes, with the Noisettes and Hybrid Noisettes, will cover well up to 16 ft. or 20 ft. or more feet. The Banksian Roses are excellent as climbers, but should only be planted against walls in rather sheltered positions; they are only summer bloomers. The white and yellow may be both relied on up to 30 ft. in good soil, but the large white or Fortuniana will run much higher. This kind is evergreen, except in very sharp winters, which is a great recommendation, but it is not so prolific in its blooming qualities as the two first-named varieties. The old Blush and Crimson China Roses will also run up the face of a wall freely to a height of 30 ft., and, as before stated, for continuous blooming qualities they are unsurpassed by the varieties of any other family of Roses; indeed, they are frequently out at their best when inexorable frost sternly interposes and checks them; in spite of this, however, it is not unusual to find a few buds still unfolding at Christmas time. The old-fashioned summer-blooming Roses before alluded to are capable of almost anything in the way of height; probably in good and deep soils they would climb in a very few seasons, if well tended, any ordinary church steeple. They completely cover themselves with blooms during the blooming period if rightly treated, and all the treatment they require, if in good soil, consists in tying them to their supports, pruning out weak and exhausted wood, and encouraging to the utmost such vigorous young shoots as may be required. No growths need be shortened except to keep them within the bounds allotted to the plant, and to take off unripened ends. Climbing Roses away from walls should not be planted in very exposed positions, as a rule, they will fail to gratify the cultivator.

Roses for hedges.—All free and continuous blooming Roses, provided they are neither of a very rampant habit of growth, nor, on the

other hand, too weak or puny, make very pretty ornamental hedges. They may be planted in mixed or separate colours, according to the taste of the cultivator, and 1 ft. to 1½ ft. apart in the row. It is a good plan to run a stout galvanised wire at 18 in. to 24 in. from the ground, supported on wooden or iron uprights over the centre of the row, and to this, heavy shoots which would otherwise be liable to receive damage from high winds may be made fast, thereby greatly adding to the neatness and stability of the hedge. More pruning should be accorded to hedge Roses than to Roses for climbing and bedding purposes. I recommend that all weak and exhausted wood be cut right away, and healthy vigorous shoots to within 6 in. or 9 in. of where they started the previous spring, exercising some judgment in keeping the hedge all through, as far as possible, even, both in height and width.

Rose screens.—Climbing Roses may be used to screen unsightly buildings and other objects, by training them to galvanised wire or other fences or supports, and, except when the leaves are off, answer this purpose most admirably, by the interposition of their loveliness.

Moss Roses.—All the above methods of growing Roses not only yield good decorative effects, but give supplies of flowers for cutting. Heretofore, however, I have not mentioned Moss Roses, because, from a decorative point of view, in the out-door garden, as growing plants, their value is comparatively small. As cut flowers, however, they are among the most exquisite of Flora's productions. A small proportion of them only should be introduced in mixed beds or borders, and as low climbers. But the kitchen garden is the place where Moss Roses should, as a rule, be placed—the plants of these being grown for the purpose of producing blooms, which are not required for ornament till after having been separated from the plant.

Pillar Roses.—The nurserymen's catalogues of Roses describe several varieties of some classes as most suitable for cultivation as pillar Roses. I planted some in October, with a view to trying whether this mode of cultivation would give better results than standards and dwarfs, but I suppose one cannot grow pillar Roses without pillars. Will some of your correspondents who contribute such interesting articles on the culture of Roses favour us with instruction as to the best kind of structure for this purpose, and in what way the plants should be disposed about their supports?—CHESHIRE.

GARDEN IN THE HOUSE.

GREEN WITH CUT FLOWERS.

Most kinds of flowers when cut and put in glasses are beautiful, but few are seen to the greatest advantage unless well garnished with green leaves of their own or of some other plant. Camellias, Roses, and a few others have foliage of their own more appropriate than any that can be added, but the leaves of many plants are not effective, and some flowers have to be cut without any foliage attached to them, a circumstance which makes it necessary to introduce greenery of some description. Choice flowers are generally associated with green of a delicate tint; wild flowers or common productions may be mixed up with coarser material, but in the majority of cases the main object is to use a green which will remain long in a fresh state. Maiden-hair and exotic Ferns generally so much thought of in connection with cut flower arrangements have not lasting properties to recommend them. Few of them last so long as the flowers, and many of them become useless a few hours after they have been cut. This gives the whole arrangement a tarnished appearance, and creates much work without any corresponding amount of satisfaction. True, some Ferns may be grown more hardy than others;

but however grown they are at least flimsy, and a hot room or a draughty position has a rapidly injurious influence on all of them. The result is far more satisfactory when things more substantial than Ferns can be used, and there are many beautiful hardy green-leaved plants well worthy of attention in this respect. Foremost amongst these may be named the Myrtles, which are evergreen and in every way pleasing. They bear cutting well, and two or three ordinary sized bushes will produce a constant supply of valuable green. *Grevillea robusta* is another quick-growing plant possessing a graceful leafage. Many of the greenhouse Acacias have pretty green points which may often be cut from large plants in quantity. The leaves of *Spirea japonica* are most useful, and we continue to cut them long after the flowers are over. The leaves of many of the hardy Asters are wonderfully beautiful, and many varieties of the *Euonymus* are finely variegated and good in a cut state, especially the points, which are generally highest coloured. Some of the *Cupressus*, *Retinosporas*, *Thuja*s, and *Thujopsis* are also admissible, as the points of the shoots are so very graceful in form and pleasing in colour. Scented *Geraniums*, too, might be much more used than they are, most of them being very hardy, easily grown, and very lasting. Many more lasting-leaved plants might be named, but a selection from those just given will be found of the utmost service all the year round. J. MUIR.

Margam, Taibach.

NOTES OF THE WEEK.

HARDENBERGIA OVATA.—Among greenhouse climbers of medium growth this is useful on account of its flowering at this season. Its blossoms which are Pea shaped, are deep violet-mauve, and borne in short dense racemes. It is now in flower in the temperate house at Kew. There is also a white flowered variety of the *Hardenbergia*.—H. P.

EARLY WALL PLANTS.—On the front of the museum at Kew is a fine example of *Lonicera Standishi*, profusely studded with its highly fragrant blossoms; near it is also a plant of *Chimonanthus fragrans* in full flower, while *Cydonia japonica*, at the same place, is just commencing to open its blossoms. It is seldom one meets with *Lonicera Standishi* in such fine condition as it is just now at Kew.—H. P.

RHOODENDRON ALBUM ELLEGANS is here quite gay, considering the season. On Saturday last I cut six beautifully clean and fully expanded trusses of flower from it, and I have them in vases in the drawing-room. There are about a dozen more trusses on the plant fully expanded, and many more in a partially developed state.—R. BUTLER, *St. Dunstan's, Regent's Park*.

STRIKING SPRING FLOWERS.—I may be told "there is little to be seen in January," but this is not so. When there is a dearth around of floral beauty then spring flowers are most telling. Take a few illustrations that caught my eye to-day in passing through Marlfield. Quite striking was a bed of Ghent dwarf Azaleas with the pure white of the Snowdrop, reflected from the dark peat, in circles. The coloured Primroses, which are unusually forward owing to the mild winter, contrasted well with the Hellebores and Arabis. In the sunken flower garden, where there are more than fifty beds all occupied, and all showy even now, very conspicuous were such combinations as blue *Anemone coronaria*, edged with Snowdrops, or the brilliant crimson star-like *A. fulgens*, either in combination or, as in several instances, in whole beds, with whole masses of some one distinct colour adjoining, for contrast or effect. Here, for instance, to-day

may be seen large beds, 20 ft. in diameter, of white or red Daisies and their varieties, whole beds of Aconite, Narcissi, distinct colours in Wallflowers, *Myosotis dissitiflora*, *Aubrietia*, Pansies, *Violas*, Arabis, *Alyssum*, *Gentianella*, and other equally well-known flowers that, owing to contrast, massing, and tasteful arrangement, have an effect never experienced where those old favourites, and hundreds I might mention, are only seen in single specimens or in detached pieces. There is no greater mistake than to suppose that gardens cannot be made interesting, as well as bright and gay, even in January.—W. J. M., *Clonmel*.

PSYCHOTRIA (GLONERIA) JASMINIFLORA is a beautiful plant with an ugly name. It is in flower in the T range at Kew, and is deserving of notice from its free-flowering and sweet-scented character, as well as its value as a winter-flowering plant. Everyone does not seem to succeed with this recent acquisition, but if the plants are started early in a moist stove and grown on rapidly until summer, and then hardened off and placed out of doors for about a month, they will be likely to bloom abundantly in the stove during the winter.—B.

FLOWERS IN KIRKCUDBRIGHTSHIRE.—The following flowers were in bloom on New Year's Day in my garden, situated near the Nith in Kirkcudbrightshire, viz., Snowdrops, Winter Aconite, Christmas Rose, white; white Arabis, purple Pansy, Polyanthus, various; double Lilac and double white Primroses, coloured and yellow Primroses, blue Hepatica, Wallflowers, light and dark; blue Periwinkle, *Pyrus japonica*, Anemone, white; yellow Jasmine, *Berberis*, wild and double Daisies, and Buttercups.—D. M. W.

PLANTS IN BLOOM at Drayton-Bauchamp Rectory, January 11, 1882:—

<i>Crocus alata</i> vici	<i>Vine</i> <i>acutifolia</i>
<i>atlanticus</i> (nevadensis)	minor
<i>hiflorus</i>	<i>Morandera caucasica</i>
<i>imparit</i>	<i>Cyclamen ibericum</i>
<i>isavicolens</i>	Coun
<i>versicolor</i>	<i>Muscari lingulatum</i>
<i>vitellinus</i>	<i>Primula acutis</i> in var.
var. <i>syriacus</i>	veris
<i>chrysanthus</i>	<i>Anemone coronaria</i>
<i>luteus</i> (miesicus)	blanda
<i>Sieberi</i> (nivalis)	<i>Hepatica triloba</i> in var.
<i>Cambessedesii</i>	<i>Ornithogalum Aucheri</i>
<i>Fleischeri</i>	<i>Coleheium montanum</i>
<i>Galanthus Imperati</i>	<i>Ficaria grandiflora</i>
Elwell	<i>Aubrietia purpurea</i>
<i>latifolius</i>	<i>Helleborus purpurascens</i>
<i>nivalis</i> var. <i>corcyrensis</i>	<i>Crocus biflorus</i> Weideni
<i>Eranthis hymalis</i>	<i>Veronica scutellifolia</i>
<i>Helleborus altifolius</i>	<i>Jasminum rudiifolia</i>
nigra	<i>Calendula arvensis</i>
<i>atrorubens</i>	<i>Ornithogalum glaucophyllum</i>
<i>antiquorum</i>	<i>Cheiranthus thieri</i>
<i>achabensis</i> albus	longifolius
<i>olympicus</i>	<i>Arabis procumbens</i>
<i>intermedius</i>	<i>Iberis hybrida</i>
<i>fetidus</i>	<i>Crocus Danfordiae</i> (?)

—H. HARPER CREWE.

GOLDFUSSIA ISOPHYLLA.—I saw quantities of this useful, but somewhat neglected, plant at Chanley, near Ipswich. Each had about eight shoots, and was about 1 ft. high, the whole being smothered with pretty lilac-coloured flowers. As grown here this plant proves useful for both dinner tables and general decorative purposes. Its cultivation is extremely simple; the cuttings are put in in spring, stopped once, potted off in a mixture of sand and loam, and grown on in cold frames during the summer. In autumn they are brought into an intermediate or warm greenhouse where they soon come into flower.—A. I.

BARLERIA ARGENTEA.—This is a stove plant much resembling some of the *Eranthemums*,

and, like them, flowering during winter. It is erect in habit, the stem being terminated by a head of bracts from which the flowers protrude. These flowers are very chaste and pretty, being of a delicate shade of mauve, and the plant altogether forms a good companion to the blue *Eranthemum pulchellum*. Like most of the class to which it belongs, its cultural requirements are simple, good liberal treatment being all that is needed.—H. P.

PELAGONIUMS IN WINTER.—We undeis' and that the *Pelargonium* houses in Mr. Cannell's nursery at Swanley are now a brilliant sight. Many of the finest varieties are beautifully in bloom.

MARKET GARDEN NOTES.

ALTHOUGH work in the market gardens has been at no time at a standstill during the winter yet it may be fairly said to have begun in earnest now for the coming season. The first work invariably is preparing ground for early Peas, and this has not only been done largely, but seed has been sown, and in warm, dry soils—such as those found on the Surrey side of the Thames—plants are fairly well through the ground. The influence of deep, dry, rich soils upon earliness is always seen in the advanced character of the early Pea crop as compared with the same on the Middlesex side; from seven to ten days' earliness is not an uncommon result. How great a gain this is to the grower is evident when the difference between 10s. and 6s. per bushel is returned. Although this part of West Middlesex is just becoming largely utilised for market garden crops, it is not by any means such fertile soil as is desirable for such an important purpose. One great defect in the soil is its tendency to get saturated with water during a wet season. An old farmer said the other day, "There is a breadth of land running from Hamondsworth to Hampton near which you may see the water lying in patches during a rainy time; that always means a cold saturated soil in the winter, and a scorched one in the summer." Well, it cannot be admitted that such is at all a pleasant aspect of market gardening in this district; and it is one that is due not to a lack of artificial drainage, but to the peculiar conformation of the tract lying as it does on the north side of the valley of the Thames. For some time before the end of the year the waters were out largely and work was much hindered, but since then there has been a subsidence, and, as far as labour is concerned, the fields and gardens have assumed an almost spring-like aspect, which will be continued or checked just as fair or bad weather predominates.

Peas.—Round Peas will be largely sown this year because the softer wrinkled Peas are dear, having ripened badly last autumn. Some people entertain the belief that if a grower saves no seed Peas he loses nothing in that way in a bad season, but that is a great mistake. The loss which falls upon the seed grower falls upon him also in the spring, when he has to buy, and having bought also has to put up with a sample the growth of which is indifferent. Fortunately all early Peas seeded fairly well, and were got in in fairly good condition, so that the price of these is moderate and the seed growth good. Sangster's and Kentish Invicta are the most favoured, and though the first is white and the latter blue, yet there is no great difference in their table quality. Where a better price can be afforded, some have gone in for a few sacks of William the First, as the deep colour of the pods and their larger size cause it to sell well in the market. Still the favourite Pea is Harrison's Glory, a kind that gardeners would not grow, but one to which market gardeners steadily adhere. It is not a Pea of quality; indeed it is not superior to William the First, but it is a blue kind; it is dwarf, producing a good crop of pods, with little haulm, and it is very hardy. This latter point is one of the first importance, because much as we may con-

demn market gardeners for adhering to such an indifferent sort, yet there is so much risk about the growth and cropping of some 10 or 12 acres of Peas, that a wise man will look before he leaps with some uncertain and tender kind. Supreme is often got in about the same time, and gives large successional pickings, but as the later sowings of Marrows have the advantage of warmer weather, of course the risk is less and the growth better. I think such new Peas as Stratagem, Pride of the Market, Standard, and John Bull, when abundant and better known, will make first-class market kinds, but it will not be till we have had a succession of good Pea seasons. Abundant seed crops are indispensable to the popularisation of any new Peas.

Green crops.—Rarely have all kinds of green crops presented such a fine, fresh, healthy appearance as now; all over the fields the breadths of Kales, Savoy, sprouting Broccoli, Cabbages, &c., look as green and vigorous as can be desired, and not only so, but continue growing. There is, however, no great sale for green material, which is, as may be expected, very abundant. So far there has not been a week in which such things as Spinach and Parsley could not be gathered and Turnips pulled. These latter are very abundant also; indeed, the old adage, that it never rains but it pours, is very appropriate as regards market crops this winter. Coleworts for bunching have been the favourite greens; so far they are tender and pleasant eating. Savoy become more favoured when well frosted. A most remarkable winter sight has been that of many women hoeing the beds of winter Onions, for the weeds have grown apace and the frost that usually serves to kill them has been wanting. With such an open time there is always a few bunches of Wallflowers to be gathered, or of Violets; and on dry Days Lettuces may be tied. Presently, too, Broad Bean sowing will commence, and already ground is being got ready for the early Potatoes. On the whole the market gardener's outlook at present is not a bad one, and may largely improve. A. D.

THE INDOOR GARDEN.

CASSIA CORYMBOSA.

THIS Cassia far surpasses in usefulness many plants oftener met with, and more difficult to grow. As a pillar or wall plant planted out in a conservatory I know of nothing more valuable. If strong and healthy, it soon covers a large space, and when covered the shoots may be allowed to push out from the trellis during the summer months, which gives it a more showy look; in autumn, when it ceases blooming, it may be pruned in as close as may be desired, and it will break strongly in the spring. Treated in this way, it will continue in bloom for upwards of six months. For planting out in summer in the open border this Cassia is also useful and very accommodating. It may be placed in the centres of large beds, or mixed with other large growing plants, or it may be planted at the foot of a wall, and trained to it, or grown as a standard, and kept in that shape according to the taste of the cultivator.

For standards the plants should be grown on one season from the cutting state in pots. In autumn let them go to rest, keeping them in a cold house till March 1, when they should be put into gentle warmth, in which they will soon make strong growth. As the days get long and warm gradually harden them off until about the end of May, when they may be planted out in some good open soil. If planted in borders, a good plan is to dig out a good sized hole, and fill it up with good soil before planting; when dry they should be well watered, and under this treatment they will soon attain a large size. When the tips get injured by frost in autumn, they should be taken up and potted, pruned in a little, and placed anywhere just out of the reach

of frost. At the beginning of the year finally prune them in and let them be treated as in the previous spring. As a pot plant for indoors it should be pruned as just directed, and when it begins to push it should be potted, or if the pot it is in is large enough, it should be shaken out, and returned to the same sized pot. When established, either keep it in heat, or when hardened off let it be placed in the open air according to the time at which it is wanted to bloom. It is most useful in the autumn for conservatory embellishment along with Liliums, Zonal Pelargoniums, &c., being so distinct in colour and continuing in bloom for so long a time. It succeeds well in a compost consisting of good loam, rotten manure, and sufficient sand to keep it open, using plenty of manure water when the pot is full of roots, which like rich food. If planting out in conservatory borders it would be well to add a little leaf-mould, or something of that sort, to prevent the soil becoming too compact.

In propagating it, take the young shoots off with a heel when about 2 in. long, and put them in pots in a sandy soil, placing them on bottom heat in a pit or house, where they will strike in a short time. In a cut state this plant is very useful, as the long foot-stalks make it accommodating, and the flower-spikes may be removed without injuring the shoots. Even the leaves are useful for the same purpose, being long and shining. A large bed filled with this and such plants as Hydrangea Otaksa, some of the Abutilons, such as Boule de Neige and Thomsoni, Arundo Donax variegata, the ever beautiful Salvia patens, and Lobelia fulgens (or some of the Cannas), is very showy and interesting and lasts long in beauty. It may be edged with such plants as Sedum spectabile, or something possessing the same kind of habit. J. C.

Farnborough.

WASTE OF FUEL.

"PEREGRINE" IN THE GARDEN recently alluded to the very great waste that occurs in heating plant houses. During the coming summer I purpose putting up a series of houses in which to grow market material. At first I intend putting up six long, low, span-roofed houses, each 100 ft. long by 10 ft. wide, with a path down the centre only. The ridge will be about 7 ft. high. The houses will be ranged in two blocks, three on each side, end to end, with a glass covered-in space about 12 ft. wide between, thus connecting the two blocks. A gutter 18 in. wide will run between each house as they stand side by side to save the rain-water, which will be conveyed into tanks in the houses. The reason for making the gutters so wide as 18 in. is the more easily to walk up them for the purpose of painting and repairs. On the north side of, and adjoining the houses, it is proposed to put up a higher span house, say 12 ft. high and 20 ft. wide, and up the centre of this to build a wall up to the ridge, thus dividing the span and making two lean-to's, a north and a south one, and to heat one or both of these lean-to houses with the flue from the boiler fire. The hot-water pipes will be carried straight up the covered-in division, the flow up one side and the return down the other, and into and out of each house direct by T-pieces from what I may call the main. It will be easily seen that each block of houses can be added to a pair at a time as needed. What I wish to know is what size and quantity of pipes, and how best placed to effectually heat the houses with the greatest economy. How best to make and carry the flue to extract the greatest benefit from it. Would it be wisest and cheapest to have two boilers in case of accident? and how best to shut off either so as to have one only going as wanted. Would it be best to have a continuous water tank or only connected, running from house to house at the further end? and of what material would this tank best be made? I shall be very glad of any practical answers to the above

queries. Efficiency and economy are, of course, the greatest considerations.—FENMAN.

—It was stated a few weeks since that much fuel is wasted through the dampers being kept drawn out after the fires have burned up; this is true, and one important point often neglected is keeping the flues round the boiler clean; another is keeping the fire clear. It is surprising what heat may be got up with a small and clear fire, which can be kept low when the sun is shining and quickly started again when required. I have seen what appeared to be a furnace full of bright fire, which, when drawn out, proved to be bright only in front, the back being choked with rubbish. Often too much fuel is put on at once; a great mistake. In the morning all fires should be cleared as much as possible, the dampers left out, and the ashpit doors open; little or no fuel should be put on until the fires have burned up and been thoroughly cleared; then the stoker must be guided by the weather, the temperature required, and the probability of sun shining. If a brisk heat is to be got up a thin layer of fuel should be put on and allowed to become red, then another, reducing the draught as the fire burns through. Before putting on the last fuel at night some bright fire should be pushed to the back of the furnace, and not covered with fresh fuel. By this means a great deal of smoke is consumed. One point more, every furnace should be provided with a close fitting ashpit door. It is as important as a damper, but is often wanting. Great waste of fuel is thus occasioned, as too much cold air is admitted; if the damper be not over such a small distance the draught is very sharp through the small opening, and a fire will last little more than half as long as with an ashpit door.—W. CRANE.

Resting Eucharis amazonica.—I have no hesitation in stating in reply to "F. W. E." that the resting system in regard to this plant is that which when properly carried out will undoubtedly prove the most satisfactory. We have a houseful of Eucharis which we put in a compost consisting of loam, leaf-mould, spent Mushroom-bed material, and silver sand, covering the bulbs about 2 in. and plunging them in a strong bottom-heat. We apply the syringe freely and give liquid manure when they have filled their pots with roots. We rest them in a cool house for a month and withhold water except what is sufficient to keep the foliage from flagging. We then replunge them in their warm quarters, and in six weeks we have abundance of bloom and foliage of excellent quality. We use 5-in., 6-in., and 10-in. pots, the latter supplying from eighteen to twenty spikes each, each spike carrying from five to seven blooms, and each bloom measuring from 4 in. to 5 in. in diameter. To show how often plants of this Eucharis can be bloomed, I may mention that we the 6th of last November, and they are now in bloom had a 6-in. pot containing five bulbs in bloom on again (January 16), each bulb producing a spike on both occasions. Our plants of Eucharis have improved considerably since the resting system has been adopted.—J. RIDDELL, *Wentworth, Rotherham.*

Violets not flowering.—What can be the cause of my Neapolitan Violets not flowering this year? I have twenty flowers filled with them, and the plants were put in them in September, and for the first few weeks they did very well, but since then they have quite ceased flowering, notwithstanding we have had unusually bright weather for the time of year.—J. S.

Phyllanthus nivosus.—Where fully exposed to the light, this plant assumes a beautiful colour, the leaves being more or less marked with pink, white, and green in varying proportions, some being almost white and others white with a pink tinge; some, again, have the three colours all blended together, while others are green. For use in a cut state, when flowers are scarce, it is well adapted, as it is of free growth, and its pinnate leaves give it a light and graceful appearance. To ensure well coloured plants it is necessary to choose only such as cuttings.—H. P.

MONSTERA DELICIOSA IN A COOL HOUSE.

THE popular types of graceful vegetable life we usually select to illustrate our notions of plant beauty are seldom in these regions the great Arums, of which one is depicted in the accompanying engraving. Such plants, represented in our regions in the open air by our little Cuckoos and a few other plants of a similar habit, do not strike one at first sight as allied to what, from the point of view of fine foliage and habit, are among the noblest of plants. Yet nothing we know of is more striking than the habit of these tropical plants with their noble formed leaves, quaint bold habit, and brown earth-seeking aerial roots hanging like slender cords. From what we hear and see depicted we may, without having travelled in the regions where such plants predominate and fill the woods, get some idea of their strange power to impress one; even stunted in pots and without a particle of their bold natural habit being seen, one can enjoy the wonderful beauty of the foliage. At Schonbrunn, near Vienna, is the finest collection of these plants we have seen, we think, and they are effectively arranged, growing up stems of Tree Ferns and against back walls. At Kew, too, in the Aroid house one gets a fair idea of their dignity and variety, but the point we want to illustrate by this graceful sketch is the fact that some of the species do very well in the cool house, that is to say, in a conservatory only heated sufficiently well to keep the frost quite out. Generally, as everybody knows, they are treated as stove plants. So it was in the Botanic Gardens in the Regent's Park, where this engraving was sketched last summer; but some years ago, in the course of alterations in the large house there, the portion that had been in the stove was thrown into the cool part, and a

bank of rockwork covered this, and an allied Aroid was allowed to take its chance. The result was that the plant grew perfectly well and made a vigorous growth every summer under the new conditions, proving it to be admirably adapted for the embellishment of such surfaces in the conservatory or winter garden. Unhappily, though we build many large houses, we seldom have any notion of making them green and graceful by the use of such objects as is here depicted. We still stick to the red pot and the stage—necessary things, perhaps, for the growth of certain classes of plants in houses devoted to culture, but wholly needless and inartistic in what is called the "show house." The whole of the arrangement of that is much in want of change. Speaking generally, the variegated bench with the usual Chinese Primroses, Cineraria, and other ordinary flowers mixed everywhere in the

same proportions, is the equal in its way of the common monotonous shrubbery. To conceal all the hard angles and shabby artificiality of everything called a show-house should be our pride. There are a thousand things wherewith to do it and many, ways, even in places for which this bold *Monstera* with its curiously perforated leaves would be too large.

THE WINE PALM.

(*CARYOTA URENS.*)

THE noble specimen of this Palm, so long one of the chief attractions of the Palm house at Kew, has recently been cut down and replaced by a fine specimen of *Phoenix reclinata*. *Caryotas* have the singular character of commencing to flower from the top of the stem downwards, death following

BORONIAS IN SMALL POTS.

AN opinion exists that these, and a good many other hard-wooded plants are only useful in the form of large specimens, which many people have not an inclination to cultivate. This is incorrect, as they will flower just as freely in a small state as they do when larger, every bit of growth made which has been properly matured during the preceding autumn rarely failing to bloom. In fact, several of the different species of *Boronia* are such free flowerers in a small state that it seems strange they are not grown in quantity for flowering through the winter and spring in the way that winter blooming Heaths are. If their treatment has been such as to secure early growth and alike early ripening of the shoots, they will begin flowering from October to February, and keep on through the early spring. Amongst the whole

range of hard-wooded plants there are few if any that will continue blooming for so long a time. *B. pinnata*, *B. Drummondii*, *B. elatior*, and *B. megastigma* will go on flowering for from three to six months without intermission. I have had plants of *B. pinnata* in 6-in. or 8-in. pots that have given a succession of bloom from September to April, their beautiful soft pale purple flowers being equally attractive in the bud state as they are when fully open. In a conservatory or greenhouse where the night temperature is kept at from 40° to 46° the flowers will open freely, and attain their full size; *B. Drummondii* has red flowers, and is equally free in producing them; the blooms of *B. megastigma* and *B. elatior* are of different shades of red, and are borne in profusion, the long slender shoots being so literally clothed with them that the small leaves are all but hid. For elegance of habit all the species named are not excelled by anything in cultivation, added to which they are by no means difficult to grow, not being subject to die off suddenly in the way in which Heaths and some other plants do. For any purpose the *Boronias* require little support

in the shape of sticks or ties, and when to be used in a small state such as here suggested, all they want is a single stick to the main stem, the principal side shoots being looped up to it. Good fibrous peat with a moderate addition of sand is what they require to grow in; they are not delicate-rooted plants liable to suffer through the least excess of moisture, although, as a matter of course, in common with most other hard-wooded species, they need a reasonable amount of attention. Winter and early spring is the time they want to flower, but by retarding they can be kept later. Still, as I have already intimated, to have them in the best condition through the winter they should be encouraged to make their growth early by keeping them in a light, moderately warm greenhouse in April, May, and June, turning them out-of-doors in the full sun about the middle of July, by which means further growth will be checked; the wood thus early ripened at



Monstera deliciosa planted out in cool house in Botanic Garden, Regent's Park.
(Sketched from Nature, Autumn, 1881.)

close in the wake of the spadices as they are developed singly. The Kew specimen has produced nine spadices, the last one developing this year. Of these, two fine specimens are to be seen in Museum No. 2. These gigantic inflorescences hang gracefully from the stem like immense horse-tails, being about 6 ft. in length and 4 ft. through, and bearing thousands of brown, leathery flowers. The trunk of the Kew specimen was about 50 ft. high, and before the flowers appeared must have borne a magnificent head of foliage. In the Palm house at Kew there is a splendid specimen of perhaps the noblest of the genus, *C. Rumphiana*, whose leaves are about 25 ft. long, with a spread of at least 20 ft., looking like immense *Angiopteris* leaves. This tree can best be viewed from the gallery above. Another species well represented at Kew is *C. Cummingii*, which is now bearing several of its graceful flower-spikes. Others are *C. sordifera*, *C. maxima*, *C. obtusa*, *C. furfuracea*, and *C. Blancoi*. G.

once sets flowers in abundance the whole length of the current season's shoots.

T. BAINES.

THE FLOWER GARDEN.

CHRYSANTHEMUMS OUT-OF-DOORS.

THE Chrysanthemum belongs to an extensive family scattered over the four quarters of the globe. *Areticum* and *absinthifolium* are from Kamtschatka and Siberia; *carinatum* and *palmosum* from Barbary, while in the more temperate regions and in our own country many interesting species are found, but none to compare with the beautiful *C. indicum*. In China this has been cultivated for centuries, as the old ceramic art of that country testifies; upon this we find it portrayed as a large single yellow flower with long loose petals of no great beauty. How and when the first double variety was obtained by the Chinese remains a mystery. Upon its introduction into Europe in 1789 it was treated as a greenhouse plant, and attracted but little attention. The flowers were semidouble and dull purple in colour. Subsequently others of various shades found their way to this country, and were extensively grown.

About the year 1826 the first seedlings were raised in Europe, and the results exceeded our most sanguine expectations; perseverance and skill have since worked such changes in this beautiful autumnal flower, that even the Chinese themselves have some difficulty in recognising it.

Culture.—The Chrysanthemum is quite hardy and will grow in almost any soil or situation, and therefore it is impossible to lay down any general rule for its cultivation. The varieties, however, vary a good deal, and the treatment necessary for one is often unsuitable for another; for instance, the summer-flowering varieties are spoiled by being exposed to hot sunshine; they succeed best in the north of England and Scotland, while the large flowering kinds and Pompones require all the warmth that the south can furnish. As the climate of some parts of China is much warmer than that of this country, particularly the autumn months, the thermometer often standing at 100° Fahr. in the shade, a south or south-westerly aspect should be selected for the site of a Chrysanthemum plantation, and the shade of trees or buildings should be avoided. In town gardens this is not always possible, but the nearer we can approach the conditions just alluded to, the greater will be our success. None need, however, despair, for in spite of such obstacles as smoke and fog, some of the finest flowers exhibited at the autumn shows are grown in the small gardens and yards of densely populated cities. Much, however, depends upon soil; the Chrysanthemum is such a voracious feeder that where vigorous foliage and fine flowers are desired the soil cannot well be made too good. If practicable, it should consist of equal parts of fresh loam, rotten manure, leaf-mould, and sand. These, well mixed in autumn, and allowed to remain in ridges during the winter, will be in good condition to receive the plants in March or April. Many prefer autumn-made cuttings, and if intended for pot culture they are best, but for open-air culture strong suckers, if they can be procured, should be selected. They receive no check when planted, and in order to allow a free circulation of air the plants should stand at least 3 ft. apart. The same roots left undisturbed for two seasons in succession never produce fine flowers. They should, therefore, be replanted every year towards the end of May. Strong stakes should be placed to each plant, and the main stem should be firmly secured thereto during the growing season, the laterals being neatly tied into their proper places—but not too stiffly, and all unsightly

branches should be removed. The beauty of the foliage and size of the flowers may be increased by applications of liquid manure during the summer months. Early in October disbudding should be commenced. The centre or crown bud, if perfect, should be left, and all the others carefully removed. One fine flower on each branch is preferable to several small ones.

Varieties.—The following varieties are good in habit, free flowering, and well adapted for open-air culture:—

White.	Guernsey Nugget
Vesta	Abbé Passaglia
Mrs. Rundle	John Salter
Virgin Queen	
Eve	Blush and Rose.
White Venus	Belladonna
Mrs. Halliburton	Ariadne
Beverley	Hermine
	Christine
Red.	Princess of Teck
Cardinal Wiseman	Venus
Julia Lagravère	Lady Talfourd
Prince Albert	Lady Harding
Triomphe du Nord	Lady Slade
Pio Nono	
Jewess	Crimson-purple.
Duc de Corregliano	Alma
	Mr. Murray
Yellow and Orange.	Prince of Wales
Aureum multiflorum	Progne
Chevalier Damage	Prince Alfred
Golden Beverley	R. Rozas
Jardin des Plantes	Lord Derby
Sulphureum superbum	Mulberry

Wall Chrysanthemums.—In many well-kept town gardens the eye is offended by unsightly brick walls, and the question is often asked, What can be done to hide them? The answer is, train Chrysanthemums upon them; if well nailed in they take up but little room and afford a pleasing background to the other occupants of the borders. Strong cuttings or suckers planted at the base of the wall 1 ft. apart early in March, in soil similar to that just recommended, will make rapid growth, and if kept neatly nailed in and all the side shoots removed as they appear, will soon cover a wall of ordinary height. Liquid manure from time to time will strengthen the plants and improve the foliage, and if carefully disbudded in September, a grand show of large flowers will be the result. Should it be desired to protect the blossoms from wind and weather it can be effectually done by nailing a 12-in. board on the top of the wall so as to form a coping. This supported by a few poles in front is all that is required, and if practicable a canvas covering fastened in front when the nights are cold will generally prove sufficient protection; with these simple precautions the duration of the flowers will be greatly prolonged. The varieties named below are best for wall culture:—

White.	Venus
Beverley	Pink Perfection
White Globe	Duchess of Manchester
White Queen of England	Lady Hasting
Vesta	Lady Slade
Mrs. Rundle	
Virgin Queen	Crimson.
Princess of Wales	Prince of Wales
White Venus	Prince Alfred
	Lord Derby
Yellow and Orange.	Lady Talfourd
Mr. G. Glenny	Alma
Guernsey Nugget	Progne
Jardin des Plantes	Argeneia
Golden Beverley	
John Salter	Red and Brown.
General Slade	Triomphe du Nord
Ni Desperandum	Prince Albert
Dr. Brock	Bernard Fallisy
	Mr. Brunless
Blush and Rose.	Julia Lagravère
Aimé Ferrière	Hercules
Belladonna	Sanguineum
Princess of Teck	Pio Nono

Pompones.—These require the same treatment as the large flowering varieties. They may be advantageously planted, either in front of tall growing kinds or in beds by themselves. If for the latter purpose, they should be planted in April. Each root should be set about 12 in. apart, and the head or leader should be taken off when about 8 in. high, and all lateral branches encouraged to grow. These, when sufficiently developed should be pegged down in the same way as ordinary bedding plants, and this must be continued during the summer, all strong shoots being shortened or regulated in order to ensure an equal surface of bloom. Liquid manure may be given them occasionally; as to effect that greatly depends upon a judicious arrangement of the colours. The following are all good free flowering kinds:—

White.	Miss Julia
Mlle. Marthe	Mustapha
Miss Talfourd	Aureole
Arlantia	Firefly
White Trevenna	
Cedo Nulli	Yellow and Orange.
Mme. Damage	Aigle d'Or
Modèle	Drin Drin
	Mr. Astie
Blush and Rose.	General Canrobert
Adonis	Golden Cedo Nulli
Andromeda	Aurore Boreale
Mme. Roussillon	La Vogue
Mrs. Dix	
Hélène	Crimson.
Rose Trevenna	Salomon
Trophée	Durufet
	President Decasse
Red and Brown.	Miranda
Bob	Crimson Perfection
Brilliant	James Forsyth

The early or summer-flowering Pompones do not appear to advantage in open borders unless shaded from hot sunshine in August and September. They are very dwarf and of various shades, but for out-door decoration in the south of England they are of but little value. The climate of the north and Scotland suits them admirably, and there they are invaluable mixed with herbaceous plants or in ribbon borders. Their free habit and profusion of brightly-coloured flowers render them very attractive. The following are worth a place in every garden:—

Early Pompones.	
Nanum, white	Le Luxembourg, yellow
Mme. Dufoy, white	Mme. Pecoul, rose
Souvenir d'un Ami, white	Adrastus, rose
St. Mary, white	Delfins Cabouché, rose
Chromatella, yellow	Frederick Pele, red
Henderson, yellow	Scarlet Gem, red

A. S.

Lychnis alpina.—Referring to "Brockhurst's" notes on this interesting plant in THE GARDEN (pp. 585 and 615, Vol. XX.), I am of opinion that there is a marked difference between the Scotch plant and the ordinary form, of which the figure in Wooster's book is a good representation, and which I assume to be identical with the English plant. I have several times visited the Scotch locality (Little Culraich on Clova, Torfarshire) when the plant was in flower, the last occasion being in the end of June, 1880, when the plants could be counted by the score or hundred (they are more or less abundant according to the character of the season), and in no case did they exceed 3 in. or 4 in. high. On each occasion I brought home a few, and they never increased in size in cultivation; they generally died out in a year or two, so that they require to be renewed from seed, in fact treated as a biennial. I have long observed a difference, but as the plants went under the same name, it was not so decidedly forced on my attention till last summer, when I had the Scotch plant (both original and seedling) in flower side by side with the ordinary form. The difference was very marked, the former not

being half the height of the latter, and the whole plant being smaller in every way; in fact the one was almost a miniature of the other, although the flowers were quite as fine. I find this other difference, that while the ordinary form is very willing to grow with me, seedlings sown in the open ground in spring coming up quite readily and forming strong tufts flowering next year,

the English and Scotch stations, then the plants are different, the one being so much larger than the other.—EDW. MOIR, *Norport, Fife.*

ASTER ELEGANS.

This is the engraving of a delicately coloured and pretty Starwort which Mr. Moore sent us



Flowering Spray of Aster elegans. (Drawn October 11, 1881.)

the Scotch plant is shy to grow even from seed, and more difficult to manage. I have grown *L. lapponica* from seed, obtained from Mr. Thompson, of Ipswich. This grows readily like the ordinary form, and is perhaps a little dwarfer than it, but not so dwarf as the Scotch form. I allowed it to drop out of cultivation some years ago, as it was not sufficiently distinct. If the lithological character of the soil is alike in both

from Glasnevin in the autumn under the above name. It differed from many of its race in the openness of its colour—a delicate French grey. We hope it may prove a free grower. The names of the *Asters* are hopelessly "mixed." The great point is to secure kinds good in flower and habit, and no doubt such names as they are truly entitled to will be settled some day.

RENOVATING LAWNS.

AMATEURS generally have a wholesome dread of what is called ground work. To them it is messy as well as costly, and consequently disagreeable; and no wonder, for there are few garden operations in which money may be sooner lost or saved. Some years since I had a striking illustration of the loss of money as well as time in a lady who undertook to be her own clerk of the works as well as landscape gardener. On a foggy and sloppy November day I was sent to advise her, and found her with a swarm of labourers around her literally and metaphorically stuck fast in the mud. She had been at work lawn making for over three weeks. Capital turf had been carted from a common about three miles off, and the plan of proceeding was as follows: The ground was part of an old wood, and as soon as a part was cleared it was forthwith smoothed down, and the turf unrolled, rammed, and rolled down, the lady all the while standing on and rejoicing in the green oasis that her genius and her enterprise had created. The process was repeated the following days, generally, however, starting from a fresh centre. The nett result was that when the two days' work met there was generally found to be some inequality of surface which made it needful to lift the turf again. This goose-step process had proceeded so far at the time of my visit that most of the turf had been nearly worn through, and had acquired the colour of the surrounding mud. This is merely cited as an example of expensive turf laying to be avoided, and with the view of enforcing the importance of the fundamental maxim to be observed in all such work, viz., that of having the ground properly formed and shaped before a single turf is laid. In all ground work a clear idea of future form and appearance should precede the laying of turf. The simplest way is to place the ground on paper first, and then work to the plan. This was the plan that was adopted to lift the lady referred to out of the mud—a muddle in which she had got bemired, and it will keep all the readers of *THE GARDEN* out of similar difficulties if they will adopt it. As well try to build a house as to lay out a garden or form pleasure grounds without a plan. But not a few are so impatient for results that they cannot wait while the foundations of good lawns are being laid. Among these thorough drainages and an equal depth of soil over the entire area are often the most essential. In the case referred to part of the ground was a swamp, through the filling in of an old ditch. A drain had to be laid through this, to the horror of the lady, who had formed one of her richest green oases right along its crown. Then clay from the foundation formed the surface on one place, road sand in another, rich soil from an old kitchen garden in a third, and it needed a lot of argument to convince those concerned that these could never produce grass of uniform verdure or quality.

Uniform solidity is a work of great difficulty, as in filling up inequalities of surface it is well-nigh impossible to ram soil down so firmly as is done by time. It must, I should think, be obvious to everyone that unless the base of Grass lawns be of uniform solidity, they will quickly subside in the most erratic fashion, leaving labyrinths of inequality, instead of that greatest charm of a perfect lawn—a smooth or even surface. Having thus ensured a base free from stagnant water, ground of fair and uniform quality, equally solid throughout, any one of the following three methods may be adopted for the obtaining of a good turf.

Turfing.—The first is that of covering the entire surface with turves or sods; those cut from a common, the roadside, or a closely fed meadow, are the best; in fact, they are already a good lawn, short, close, fibrous, even, uniform almost as velvet pile, all that is needful being, in fact, to transfer the lawn in detail from the distant common or mead and lay it down in a mass for use. Such turves carefully lifted and relaid for a ready-made lawn fit for almost immediate use. There is no better or easier method of transferring such lawns ready made or grown than

that of lifting the turves in sizes 1 yd. long, 1 ft. wide and 1 in. thick; these should be rolled up tightly and in such a state are easily conveyed and unrolled on to their final growing quarters. There is only the objection of expense to this method of what may be termed spontaneous lawn making, but where the turf is near, labour plentiful, and skill available, the expense is less than might be assumed, while the results are as sure as they are swift.

Grass seeds.—A second method consists in sowing the prepared ground with lawn mixtures of Grass seeds, which are now carefully selected by all our leading seedsmen. This almost equals whole turves in the rapid production of mere verdure; but seedling Grass is long in producing a good bottom, and on many soils it is several years before lawns formed by sowing seeds

with whole turves according to the first method described. Some prefer sowing seeds thinly on lawns formed by inoculation, either at the time of laying the turf or early in the spring. It is a very good plan, but really not necessary. The seeds may hasten the verdure, but hardly improve the quality of the lawn, and I have formed many acres of lawn by inoculation both with and without seeds, and could scarcely tell the difference at the end of six months. Of course lawns thus formed look unsightly for a time, but to all who can afford to wait for a few months, the saving of labour and material is so great as to strongly recommend inoculation as the cheapest as well as the simplest method of renewing or extending Grass lawns. The turf from one acre may thus be made to cover ten, while the work may be done in one-fourth of the time. D. T. FISH.



Canna Ehemanni; showing habit of growth; height 5 feet.
(Sketched from Nature at Pendell Court, Aug., 1881.)

reach the high state of perfection attained at once by those formed through the laying of good turves.

Inoculating.—A third plan, and it is that which I would recommend as the cheapest and best to all who have to form lawns of any extent, is that termed inoculation. The ground is prepared exactly as if for whole turves or seeds. Turves are also brought on to it, but instead of being laid down whole they are torn to pieces into irregular and ragged fragments from 1 in. to 2 in. in area; and it is these pieces that are laid on the ground with the Grass seed. On no account should the turves be cut by spade or edging knife. These pieces of turf should then be laid on the ground with the Grass upwards, leaving interstices of 2 in. or so between each. Beat them into the soil with rammers and roll heavily. Should the weather or soil be wet the lawn will look anything but green after inoculation is finished. But presently the Grass will spring up, the raw edges extend to one another, meet, overlap, and a perfect verdant mat be formed, which will equal and sometimes excel within the short period of six months lawns formed at once

Chrysanthemum seed.—A question has been mooted in THE GARDEN by "Anonyma" with respect to raising new varieties of Chrysanthemums by seed. It is, I believe, pretty certain that most of the additions to the varieties in cultivation have been from sports, and everyone knows that there is a greater fixity of character and quality in kinds raised from seed than in mere sports. I have been a seedling grower now for upwards of thirty years, and I never saw a seed of our florist Chrysanthemum. I visited the Versailles Nursery at Hammersmith many times when Mr. Salter conducted it, and saw many seedlings. He told me he got some friends of his in the south of France to grow his plants and save seed from them. I have tried in many shops in the south of France, but could never meet with the right sort of Chrysanthemum. I have tried at Mentone, Nice, Cannes, and Hyères. They have various kinds of Chrysanthemum seed, but none from the garden or florist flower. So if "Anonyma" has been more successful, perhaps she will say where she got the seed from.—W. H. O.

THE GARDEN FLORA.

PLATE CCCXX.—CANNA IRIDIFLORA EHEMANNI.*

ONE of the noblest and most beautiful amongst recent additions to stove plants is the *Canna*, of which we herewith give an illustration. *Cannas* are, as a rule, stately plants, but this one excels them all in that respect, for not only is its foliage bold and ornamental, but its blossoms are very lovely. It would be difficult to imagine a more charming object than a well-grown specimen of this plant, such as we have seen in Sir George Macleay's garden at Pendell Court, Bletchingley, under the care of Mr. Green. Here it occupies the margin of a large tank, planted on a raised mound of good soil, so that its roots have free access to the water, and, being associated with other large aquatic and sub-aquatic plants, and itself rising from a carpet of the feathery foliage of *Herpestis reflexa* (*Myriophyllum proserpinacoides*), it produces a striking effect. It is remarkable for its protracted flowering season; from early spring till within a few weeks ago it has been continuously in flower; it is, however, best in early summer.

Of its origin we cannot speak with certainty, but it appears to have emanated from Continental gardens. Its nearest neighbour is *C. iridiflora*, of which, indeed, it may be a variety, but it is far finer than we have ever seen that species, the flowers being larger, the colour brighter, and the plant altogether of a more ornamental character. Its easy culture is a great recommendation to it, and the ready way in which it may be propagated will soon render it plentiful, for it is not much known in this country as yet. The finest plants we have seen of it were at Kew, in the tropical and Water Lily house; at Sir Trevor Lawrence's, grown in a large pot in a stove; and at the late Mr. Joad's, planted out in a warm greenhouse in a moist border. These plants have, we believe, all been taken from the Pendell Court plant, which is by far the finest example we have seen. It is also grown well by Messrs. Hooper & Co. in their nursery at Twickenham, whence a plant was exhibited last year at South Kensington, where, without dissent, it was awarded a first-class certificate.

CULTURE AND POSITION.—As to culture, we cannot do better than quote Mr. Green's remarks with regard to this plant. He says: "*Cannas* generally are most useful, both on account of their fine foliage and flowers. Most kinds grow well in a rich soil in the open garden during the summer months liberally supplied with water. Some few seem to delight in being submerged, so that their roots have free access to mud or water. Amongst these may be named *C. flaccida*, *C. glauca*, *C. limbata*, and others, more especially *C. iridiflora* var. *Ehemanni*, the grandest of all. This is planted here with the crowns about 1 ft. above the water in a mound of good strong loam and river mud, such as *Nymphaeas*, *Papyrus*, and other warm-house aquatics are planted in. I do not say that it will not be satisfactory in the open garden in summer, but the above is what may be termed its warm treatment. I have grown it out-of-doors, but it was not put out early enough to make really good plants." W. G.

French cloches.—These useful protectors have been so often noticed in THE GARDEN that many will doubtless wish to adopt them. In many places, however, they cannot be easily obtained. Will any of your readers kindly inform us what they are, and how they should be made? Would oiled calico do instead of glass?—C. F., Parkstone.

* Drawn from a plant at Pendell Court in the second week in August.



CANNA IRIDIFLORA EHEMANNI.

THE KITCHEN GARDEN.

PERPETUAL SPINACH.

THIS is a good Spinach, which can be had both in summer and winter by making two sowings at different times, and when well grown it is equal to either the early round-leaved or the late prickly seeded or winter Spinach. For early spring crops nothing equals the round-leaved; and for autumn and winter crops the prickly seeded is the best where it does well, but upon heavy clay and very wet soils the crops are often nearly failures. The perpetual Spinach seems to grow luxuriantly on any soil and at all seasons of the year, and being a gross feeder one can give the plants a good quantity of liquid or other manure. From one sowing made in the first or second week in April I get a good supply of fine large leaves during the summer. In hot dry weather the round-leaved Spinach is liable to run early to seed; therefore it produces but few leaves, and those of only second quality. The perpetual sort grows well in hot weather, and by feeding the plants freely with artificial manure one is able to get from the spring sowing a good supply during the summer and autumn. The second sowing must be made early in July in order to give the plants time to get well established before winter, and from these one is able to have a good supply in proportion to the piece of ground devoted to the crop.

The last two winters nearly killed the whole of our prickly Spinach, while our crop of the perpetual withstood the severe frost; therefore we had plenty to pick from until the round-leaved was fit for use, and also the spring sown crop of the perpetual. The latter withstood the hot dry weather we had this summer, and produced a plentiful supply of good Spinach, and even now we are picking daily from the same bed. Ground for this Spinach is either dug deeply, or better still, trenched, working into it deeply at the same time plenty of rotten manure for the roots to feed upon.

The seed may either be sown broadcast upon the beds, or in rows 12 in. apart, thinning the plants in the rows to from 6 in. to 9 in. asunder. I prefer rows, as they afford a better opportunity for keeping the ground free from weeds, and if need be artificial manure can be sown between the rows, hoeing it in deeply with a draw hoe. I find superphosphate or bone meal one of the best manures for Spinach; it seems to invigorate the plants in a very short time after being used. Liquid manure from the farm-yard is, however, quite as good, only it requires to be often used during the season. I find two good dressings of bone meal to carry a crop on for six months.

WM. CHRISTISON.

The Rookery, Bromley Common.

Veitch's Protecting Winter Broccoli.—This is doubtless one of the very best for a supply at this date; it is so thoroughly protected with large thick leaves, curling down closely over the heart, that it takes a severe frost to injure it in open quarters. The best plan, however, is to take the plants up and lay them in closely together, either in frames well ventilated on all favourable occasions, or even in the open ground to be covered when necessary, for if shut up close the flavour is soon affected.—J. G. Linton.

Asparagus seed.—Messrs. Hooper, of Covent Garden, inform us that they have bought the seed of the Asparagus grown by Mr. Harwood, which our readers will remember was successful in gaining important prizes during the past year. Some people may desire to have seed from such a strain, but it would be unfair to lead the reader to expect that this would give him a distinct

variety. The excellence of Mr. Harwood's Asparagus depends on culture; however, it is to be called "The Giant."

Sowing Lettuces and Cauliflowers.—A small sowing of Veitch's Forcing Cauliflowers and Bath Cos Lettuces should now be made in boxes to succeed those wintering in cold frames. I find Veitch's Forcing Cauliflower excellent for very early work, coming into use in a minimum of time. The produce of seeds sown in boxes and placed in an early victory or Peach house, and gradually hardened off in cold frames and pricked out in February under some span-lights, will make an excellent succession to the autumn-sown plants. Amongst Lettuces I have not yet found anything to beat the Black-seeded Bath Cos.—J. G. L.

Autumn planted Potatoes.—A neighbour informs me that by planting in November, with whole sets, 8 in. deep, he obtains double the crop he can grow by the ordinary method of spring planting. Will some of your correspondents who have tried this plan kindly give us their opinion of its value? For my own part I fail to see the advantage autumn planted sets can have over those kept in earth through the winter, and planted in say February or March, when the soil can generally be so much better wrought, and likely to remain in a more friable condition; therefore more suitable for the progress of root and top growth, than can be the case with soil that has been saturated and battered by the winter rains.—G. L. M.

Protecting early Peas from birds.—There are some localities I know where early Peas are very liable to be destroyed wholesale by rooks, jackdaws, &c. Peas planted on a sunny border now when throwing up their white buds attract crows owing to the general absence of other feeding material, and immense destruction often takes place in a single morning. Rather curious, I found last year when the Peas were allowed to start in frames or boxes until the tops became green, and then transferred to open lines, they were not molested. Furze tops are a protection against mice or rats, but not wholly against birds. I understand there is a light, cheap, convenient galvanised wire netting recently made for laying down on the drills, easily removed, and intended to meet such cases. Illustrations of this are often given in advertisements.—W. J. M., Clonmel.

Mushroom growing.—Mr. Muir is not only a good gardener, but he has a most fertile pen. Few men of his age can boast of being a good medalist. Still, he is not infallible, and, as regards Mushrooms, I venture to assert that he is quite on the wrong side of the hedge. Mr. Barter has so well explained the fact that Mushrooms are at all times and seasons to be had in Covent Garden from outside beds, that further testimony would be superfluous; otherwise I might assure Mr. Muir that I have practised the same plan for many years, and only yesterday I got 19 lbs. off one of my beds.—R. GILBERT, *Burghley*.

Mushrooms in winter.—No doubt need be entertained as to the possibility of growing Mushrooms out-of-doors in winter. I have many times seen beds made up in the open air in the neighbourhood of Fulham and other suburban market gardens in autumn. And it is no novelty in that locality to find beds at this time of year bearing very fine crops. It is indeed easier to grow Mushrooms wholly out-of-doors, depending solely on external coverings, than to grow them in some of the structures that are called Mushroom houses, and if we all had cellars such as those alluded to as existing at Gunnersbury House, and the London market gardener's supply of manure from stable-fed horses, there would be no fear as regards a crop of Mushrooms. But many gardeners are expected to supply them from cold, draughty sheds, and from manure very different from that just mentioned that fills the atmosphere with ammonia. Given a close, moist atmosphere at about 60°, and little difficulty will be experienced in getting Mushrooms plentifully on beds made of

manure from Corn-fed horses, and out-of-doors, too.—JAMES GROOM.

I have this day (Jan. 5) paid a visit to Mr. Barter's place, and can verify all that he states (p. 524) respecting Mushrooms out-of-doors. In fact, I was quite surprised to see 500 yards of ridges in all stages, some just spawned, others in full bearing, and some that had been gathered from every week since last October, and still in good bearing order. He informed me that he had gathered 84 lb. off two ridges this week, and from what I saw he might, I should say, gather the same quantity again the next day. The practical part I leave to him, but it seemed to me the preparation of the material is of the greatest importance. There is neither greenhouse nor frame on the premises, only a long shed filled with spawn in cakes of fine quality.—R. H. BARD, *Sydenham*.

It is undeniable that paying crops of Mushrooms are sometimes raised in favourable seasons by market growers having practically unlimited horse manure and straw for making up the beds and covering them. But the whole process is troublesome, literary, requires much space, and is, to some extent, uncertain in its results. What a master in the art like Mr. Barter has attained would not under ordinary management be realised, I fear, in private gardens. In most places the gardener cannot afford to run risks, or even to make experiments in matters of supply, and therefore he must know something more definite about the matter than is as yet given by any one of your correspondents. Mr. Barter writes of gathering over 66 lbs. per week. It would be gratifying to would-be growers if he would kindly state the superficial area from which that quantity was gathered. It would be possible then to make comparisons between the results indoors and in the open air. Giving merely the quantity picked is not sufficient data upon which to act, and it is not to be thought of that any prudent man would forsake his safe and sure practices solely on the strength of that. The open-air cultivation of Mushrooms will hardly recommend itself for the northern parts of the country on account of their lower average winter temperature, and in others owing to the excessive rainfall. In the eastern, south, and south-western districts only do the conditions required for entire success seem to exist, and even in these the variations of temperature which no amount of ordinary protecting material would hinder from affecting the warmth of the ridges, snowstorms, and much rain would appear to make a constant supply rather problematical. Where the indoor culture is rational and the spawn of the best quality, from four to five pounds of produce in buttons and useable full-grown Mushrooms can be gathered from 1 square yard per week when a bed is in its best condition. Will a bed in the open air do as much? I am very partial to all cheapening processes in our business, and advocate them whenever I can well do so, being ready to adopt them if of approved worth, and I shall therefore be much obliged by further particulars from your correspondent in reference to his outdoor beds.—SYLVESTRIS.

SHORT NOTES—KITCHEN GARDEN.

Transplanting Mushrooms.—Some of the Mushroom beds here are very crowded, and the young man in charge has, I see, transplanted patches about the size of a penny piece of small Mushrooms just coming through to vacant spaces, and they seem to be growing away nicely. Has any of your correspondents tried this plan?—J. S. W.

Carte's Pink Dwarf Celery.—I have this under trial this season, and find that while Major Clarke and Manchester Red are (no doubt on account of the mildness of the season) both bolting, Carte's Pink, which I have this day (Jan. 10) tried, is not yet started. I therefore think it will prove a first-class keeper, and a good variety.—R. GILBERT, *Burghley*.

Worms in manure.—I have a large heap of manure which I want to use in spring for Roses and flower borders, but it is so full of small worms that I am afraid of doing so. Can anyone tell me what can be done to get rid of them?—C.

THE FRUIT GARDEN.

THE APPLE.

(Continued from p. 632, Vol. XX.)

Culinary Apples.—On the proper selection of varieties suited for culinary purposes, whether for market or private use, depends one of the most important points relating to Apple culture; no matter how favourable other conditions may be, success may be completely frustrated by planting in open orchards sorts only suited for sheltered gardens. Of the many sorts in cultivation but few are fit for all sorts of positions and modes of culture. For market purposes it is more profitable to grow large quantities of well-known kinds than to encourage collections. In the market the demand early in the season is for Codlins, Stone's Apple, Lord Suffield, or some equally well-known sort; now the demand is for Wellingtons, Russets, Queenings, Blenheims, or some equally distinct kinds. Old sorts, i.e., those that have stood the test of time, are the greatest favourites; but now, when a lively interest is being taken in hardy fruits, we may look for a more decided advance in the raising of new sorts. The following list contains kinds of well-tried excellence, both as regards quantity and quality of produce, and as a good dessert Apple is generally a good culinary Apple, if of large size, preference should be given to such sorts as are available for other purposes.

Admirable (Small's), 1 size, 1 quality. A very fine kitchen Apple, in use in November and December. Skin, lemon yellow, free bearer, and especially adapted for dwarfs.

Alfriston, 1 size, 1 quality, irregularly ribbed. Skin, greenish yellow, an excellent keeper, and a kind that should be in the most limited collection. January to April.

Alexander, or *Emperor Alexander*, 1 size, 1 quality, a showy Apple, very large, and brilliantly coloured, making a beautiful dish for dessert. Very juicy, good as a standard, dwarf, or cordon. On young trees the fruit attains a great size. September to December.

Atkins' Prize, or *Atkins' Seedling*, a medium-sized Apple. Great bearer, tree hardy. November and December.

Allan Bank Seedling, 1 size, 1 quality. An excellent variety for northern counties. Very hardy and free.

Annie Elizabeth, 1 size, 1 quality. Very firm fruit; will keep well until Apples come again.

Baldwin, 1 size, 1 quality. A very showy Apple, in use from November to March. Largely imported from America. Available for dessert.

Beauty of Kent, 1 size, 1 quality. Vigorous grower and very prolific; one of the very best for making fine orchard trees. October to February.

Beauty of Hants, 1 size, 1 quality. A magnificent Apple for any purpose, second, indeed, to none, either for kitchen, dessert, or exhibition. November to February.

Bedfordshire Favourite, 1 size, 1 quality. A very vigorous grower and prolific; one of the best. November to March.

Baron Ward, 2 size, 1 quality. A very fine culinary Apple, prolific, good keeper. January to May.

Belle Dubois, 1 size, 2 quality. One of the largest Apples grown, prolific, and very useful, either for culinary purposes or for exhibition. November to March.

Besspool, 2 size, 1 quality. A prolific sort, good market fruit, or for kitchen use; keeps well. January to March.

Burr Knott, 1 size, 1 quality. A very prolific hardy Apple. November and December.

Beefing (Norfolk), 1 size, 2 quality. A very

good cropper and keeper; one of the best for travelling, not being easily bruised. January to March.

Beefing, Striped, 1 size, 1 quality. A Norfolk Apple like the preceding, but of better quality; an excellent keeper, and a desirable variety. October to May.

Belle Joseph, 1 size, 1 quality. A large, handsome, very prolific kitchen Apple. October to December.

Brabant Bellefleur, 1 size, 1 quality. A very handsome Apple, hardy and prolific. October to March.

Blenheim Orange, 1 size, 1 quality. One of the finest Apples in cultivation, being well adapted either for kitchen, dessert, or exhibition; first-rate for baking—an Apple, in short, which ought to be in every collection. November to February.

Betty Geeson, 1 size, 1 quality. A very desirable Apple, well suited for dwarf bush trees. December to March.

Bough Apple, or *Large Yellow Bough*, 1 size, 1 quality. A valuable, hardy, and prolific Apple. August.

Catshead, 1 size, 1 quality. Very large irregular-shaped fruit; an old, but useful Apple. November to February.

Cellini, 1 size, 1 quality. A very prolific Apple; a good grower, and useful either for kitchen or dessert, but too soft and light for market. For small private gardens it is one of the very best. October to December.

Cox's Pomona, 1 size, 1 quality. A very handsome Apple, of great excellence, and one which makes a good orchard tree. October.

Cobbett's Fall Pippin, 1 size, 1 quality. An excellent large Apple, with white and tender flesh. November to February.

Codlin (Keswick), 2 size, 1 quality. Colour, pale lemon yellow; very juicy, excellent for jelly. Tree hardy, good grower, and extraordinarily prolific; in fact, in all sorts of positions it is one of the few Apples that carry a crop every year. If I had only room for one Apple tree it should be a Keswick Codlin. August to October.

Codlin (Manks) or Irish Pitcher, 1 size, 1 quality. Very prolific, and one of the very best for dwarfs; a favourite market Apple. August to October.

Codlin (English), 2 size, 1 quality. A very prolific variety, and one which succeeds in soils where many fail. August.

Codlin (Kentish), 1 size, 1 quality. Very prolific, vigorous grown, and useful kitchen sort. August to September.

Codlin (Dutch or London), 1 size, 1 quality. Very useful kitchen or market sort. August to September.

Codlin (Carlisle), 2 size, 1 quality. Very prolific, healthy, well adapted for dwarfs. August to December.

Codlin (Winter), 1 size, 1 quality, and an excellent keeper. Tree very prolific and healthy. October to February.

Cogswell, 1 size, 1 quality. A very useful sort, either for kitchen, dessert, or market. December to March.

Costard, 1 size, 1 quality. A good sort. Tree hardy and prolific, even in the north. October to March.

Crab (French), 1 size, 1 quality. One of the best and latest keeping Apples grown. Skin very dark green, turning yellow when ripe. January to June.

Crab (Minchal), 2 size, 2 quality. Very prolific, hardy Apple; suitable for ungenial situations.

Deux Ans (Hambleton), 1 size, 1 quality. A very valuable late keeping Apple, forming very fine trees as standards. Skin, greenish yellow,

streaked with red and russet on the sunny side. Very much grown in Kent; known as Graham's Russet. December to May.

Devonshire Queen, 1 size, 1 quality. A fine, large, and very beautiful Apple; good for culinary purposes. October.

Domine, 2 size, 1 quality. Flesh, white and tender. A very prolific, useful variety. December to March.

Duchess of Oldenburgh, 2 size, 1 quality. A Russian Apple; very popular for market, and a prolific, useful sort, bearing freely in quite a small state; well adapted for orchards or for private gardens; known also as Borovitsky. September.

Duke of Wellington, or *Dumelow's Seedling*, usually called *Wellington*, 1 size, 1 quality. One of the very best late market Apples; very full of juice, and keeps well without shrivelling. November to March.

Dutch Mignonne, 2 size, 1 quality. An excellent variety for private gardens or market, and equally useful for culinary or dessert purposes. December to April.

D. T. Fish, 1 size, 1 quality. A very large, handsome kitchen Apple, worthy of extensive cultivation. November to January.

Early Julien, 2 size, 1 quality. An extraordinarily prolific sort in quite a young state. Very popular in market gardens, both as a standard and a dwarf. August.

Echlinville Seedling, 1 size, 1 quality. A very prolific sort, and very popular. October to January.

Fall Pippin, 1 size, 1 quality. An excellent American sort, fit either for dessert or kitchen. October to November.

Flander's Pippin, 1 size, 1 quality. A large, excellent sauce Apple; one of the oldest sorts. October to December.

Flower of Kent, 1 size, 1 quality. A very fine sort for orchards, making large trees; has been cultivated in Kent for hundreds of years. October to December.

Fillbasket (Kentish), 1 size, 1 quality. A splendid Apple, yellow streaked with red; of pendulous habit, making a graceful tree; one of the very best sorts in cultivation. November to January.

Forge, 2 size, 1 quality. A very free and constant bearer; extra good as dwarf tree. October to January.

Farleigh Pippin, 2 size, 1 quality. An excellent prolific sort; useful for dessert or kitchen. January to April.

Farmer's Seedling, 1 size, 1 quality. A very fine prolific sort, suitable for market. December to April.

Frogmore Prolific, 1 size, 1 quality. A very free bearing useful sort, raised by the late Mr. Ingram, at the royal gardens, Frogmore. September to December.

Formosa, 2 size, 1 quality. Useful either for kitchen or dessert; very prolific. November to January.

Golden Noble, 1 size, 1 quality. A very large and truly excellent Apple, a spreading grower and free cropper; one of the very best of old sorts. October to March.

Golden Spire, 1 size, 1 quality. A prolific and constant cropper; now very popular as a market sort, and equally useful in gardens. September and November.

Gooseberry Pippin, 1 size, 1 quality. An excellent late-keeping Apple; one of the best. November to July.

Grand Duke Constantine, 1 size, 1 quality. A Russian Apple, beautiful and good. September.

Grenadier, 1 size, 1 quality. A handsome yellow fruit, very prolific and hardy. October to November.

Gravenstein, 2 size, 1 quality. A first-rate kind

for jelly making or other culinary purposes; also useful for dessert; a good orchard variety. October to November.

Greening (Northern), 2 size, 1 quality; free, very hardy and prolific, a certain cropper; favourite market kind for outside rows in orchards. November to April.

Goff (Orange), 2 size, 2 quality. An extraordinarily prolific kind, very hardy, making a first-rate stock on which to graft tender sorts; very largely grown for the jam makers. December to March.

Greening (Rhode Island), 1 size 1 quality. Free growing hardy American sort. November to February.

Greening (Yorkshire), 1 size, 1 quality. An excellent hardy late-keeping variety. October to January.

Hanwell Souring, 2 size, 1 quality. A first-rate kitchen or market variety. December to March.

Harvey, or *Doctor Harvey*, 1 size, 1 quality. An excellent and certain cropper, largely grown in the eastern counties. October to January.

Harvey's Wiltshire Defiance, 1 size, 1 quality. A very fine culinary Apple. November to January.

Hawthornden (Old), 2 size, 1 quality. One of the oldest and most trustworthy Apples in cultivation; excellent for dwarfs in small gardens; very prolific. September.

Hawthornden (New), 1 size, 1 quality. Much larger than older variety, longer keeper, and an excellent market sort. December to January.

Hoary Morning, 1 size, 1 quality. A large, handsome Apple; tree spreading; very prolific. October to December.

Hollandbury, 1 size, 1 quality. A large and excellent Apple. A great favourite in market gardens. November to January.

Hollow Core, 2 size, 1 quality. A useful market sort. September.

Incomparable (Lewis's), 1 size, 1 quality. A handsome market Apple; makes fine trees. October to January.

Jolly Beggar, 2 size, 1 quality. A prolific early Apple; excellent for dwarfs. August to October.

King (Warner's), 1 size, 1 quality. One of the very largest Apples, and a good keeper; excellent either for market or private gardens. November to March.

Lady Derby, 1 size, 1 quality. A prolific Apple; tree hardy and a great cropper. August and September.

Lady Henniker, 1 size, 1 quality. A large, handsome culinary Apple of extra good quality; raised at Lord Henniker's, in Suffolk. October to February.

Lord Suffield, 1 size, 1 quality. One of the most popular market Apples in cultivation; very handsome and prolific. August and September.

Lord Grosvenor (New), 1 size, 1 quality. A large, showy Apple; skin transparent and handsome. September to January.

Lord Derby, 1 size, 1 quality. A large, handsome, and good Apple. October to January.

Lord Raglan, 2 size, 1 quality. An excellent keeping Apple, first-rate for culinary purposes. January to June.

Leadington (Grey), 2 size, 1 quality. A very hardy prolific sort for northern counties. September to December.

Melrose, 1 size, 1 quality. An old Scotch variety of great excellence. October to January.

Mere de Ménage, 1 size, 1 quality. A very fine culinary Apple. October to March.

Mitchelson's Seedling, 1 size, 1 quality. A desirable sort, suitable either for dessert or cooking. December to February.

Norfolk Bearer, 1 size, 1 quality; hardy, and an excellent Apple in all ways. November to January.

Nelson's Glory, 1 size, 1 quality. A large, heavy Apple, excellent for sauce. October to January.

Prince Albert, 1 size, 1 quality. A very prolific Apple, resembling Cellini, but later. September to December.

Peck's Pleasant, 1 size, 1 quality. A first-rate American sort, useful for dessert or culinary use; largely grown for market. November to March.

Pippin (Bridgewater), 1 size, 1 quality. A prolific sort, useful for dwarfs. October to April.

Pippin (Broad-eyed), 1 size, 1 quality. An old and very excellent kitchen Apple. January to March.

Pippin (Colonel Harbard's), 1 size, 1 quality. An excellent culinary Apple, of Norfolk origin. November to March.

Pippin (Galloway), 1 size, 1 quality. A hardy and prolific sort for culinary purposes. October to January.

Pippin (Kentish), 2 size, 1 quality. A very old and useful orchard variety. October to December.

Pippin (Lemon), 2 size, 1 quality. An excellent variety, fit for dessert. October to March.

Pippin (London), or *Five-crowned Pippin*, 2 size, 1 quality. An excellent sound-keeping Apple; useful for dessert. November to May.

Pippin (Wadhurst), 2 size, 1 quality. A fine Apple either for culinary or market purposes. October to February.

Pippin (Sturmer), 2 size, 1 quality. One of the best of keeping Apples, useful either for kitchen or dessert. February to June.

Professor, 1 size, 1 quality. A very fine Apple, of excellent quality, hardy and prolific. September to January.

Queen Caroline, 1 size, 1 quality. Compact grower, and very beautiful Apple; much grown in Kent, valuable for small gardens. October to December.

Rambour Franc, 1 size, 1 quality. A vigorous grower and prolific, of French origin. September to October.

Rambour d'Hiver, 1 size, 1 quality. Tree vigorous; prolific, a useful kind. November to December.

Reinette du Canada, 1 size, 1 quality. One of the finest Apples in cultivation, good either for culinary, dessert, exhibition, or market. November to April.

Russet (Royal) or *Keeping Russet*, 1 size, 1 quality. One of the best Russets; a good grower and cropper, and very desirable sort. November to May.

Russet (Pile's), 2 size, 1 quality. An excellent grower and cropper. October to March.

Rymer, 1 size, 1 quality. One of the very best of late sorts; a beautiful Apple. December to April.

Stone's Apple, or *Loddington Seedling*, 1 size, 1 quality. A grand market Apple, first brought into notice in the parish of Loddington, in Kent; does best grafted on strong sour kinds, never known to fail; extra good either for cooking or exhibition. August to December.

Stirling Castle, 1 size, 1 quality. An extraordinarily prolific sort, in great favour in cold localities, good as a dwarf. October to November.

Tower of Glamis, 1 size, 1 quality. Tree healthy, very free grower, and prolific; one of the very best of Apples for orchards; of Scotch origin. November to March.

The Queen (Saltmarsh), 1 size, 1 quality. A large handsome Apple, either for kitchen or exhibition. November.

Waltham Abbey Seedling, 1 size, 1 quality. An Essex Apple of great excellence. September to December.

Tippet's Incomparable, 1 size, 1 quality. A remarkably handsome and good Apple. November to January.

Washington, 1 size, 1 quality. A very handsome Apple covered with a Peach-like bloom. September.

Winter Queening or *Sussex Duck's-bill*, 1 size, 1 quality. A very excellent keeping Apple, fit either for culinary purposes or for dessert; largely grown in Kent for market. December to February.

Selections from the above for small orchards.—Alfriston, Annie Elizabeth, Beauty of Kent, Beauty of Hants, Blenheim Orange, Besspool, Bedfordshire Foundling, Beeding (Norfolk), Beeding (Striped), Bough (large yellow), Cox's Pomona, Cobbett's Fall Pippin, Codlin (Keswick), Codlin (winter), Crab (French), Deux Ans (Hambledon), Dumelow's Seedling or Wellington's, Dutch Mignonne, Echlinville Seedling, Flower of Kent, Fillbasket (Kentish), Golden Noble, Gooseberry Pippin, Gravenstein, Greening (Northern), Goff (Orange), Harvey, or Dr. Harvey, Harvey's Wiltshire Defiance, Hoary Morning, Hollandbury, Incomparable (Lewis's), King (Warner's), Reinette du Canada, Royal Russet, Stone's or Loddington Seedling, Tower of Glamis, Waltham Abbey Seedling, Winter Queening. The following make good standards, and they are also very prolific as dwarfs: Admirable (Small's), Alexander (Emperor), Atkins' Seedling, Codlin (Manks), Burr Knott, Betty Geeson, Codlin (Carlisle), Duchess of Oldenburgh, Forge Apple, Frogmore Prolific, Golden Spire, Hawthornden (Old and New), Jolly Beggar, Lord Suffield, Queen Caroline, Early Julien, Hanwell Souring, Sturmer Pippin, Rymer, Cellini, Stirling Castle, Belle Dubois, Codlin (Dutch or London).

Selection for dwarfs, cordons, or pot trees.—In addition to sorts previously described there are several possessing great excellence if grown in the form of cordons or on walls in sheltered gardens; and wherever collections of Apples are grown they are well worth a place. Many of the very best culinary sorts are also very beautiful for dessert, being clear and almost transparent in the skin, and some such beautiful kinds as Emperor Alexander, Belle Dubois, and Reinette du Canada are amongst the most effective for exhibition purposes.

American Beauty, 1 size, 1 quality, yellow and red, tender and juicy. A very desirable Apple, and very prolific. December to April.

Banks' Exhibition, 1 size, 1 quality, pale yellow, mottled crimson. A very beautiful Apple for culinary use or for exhibition. September to December.

Beauty of the West, 1 size, 1 quality, greenish-yellow and red. A tender, juicy American Apple of great excellence. October to February.

Beauty of Hants, *Beauty of Kent*, *Belle Dubois*, *Bedfordshire Seedling*. All previously described.

Belle et Bonne, 1 size, 1 quality, pale yellow faintly streaked with red. A highly favoured excellent old Apple. October to December.

Bellegue (Brabant), 1 size, 1 quality, beautiful lemon coloured, useful for kitchen or dessert, and very effective for exhibition. October to March.

Bellflower (Yellow), 1 size, 1 quality. A beautiful French Apple on warm soils, excellent in quality. November to February.

Calville (Aromatic), 1 size, 1 quality, reddish yellow. A handsome early Apple, very juicy and richly perfumed. September to October.

Calville Blanche d'Éte (White Calville), 2 size, 1 quality. Skin, pale yellow, very handsome when full grown. Flesh, white, tender, and delicate; the earliest of the Calvilles. August and September.

Calville Blanche d'Hiver, 1 size, 1 quality. Skin, greenish yellow, golden when ripe; excellent for kitchen or for dessert. January to April.

Duchesse de Brabant, 1 size, 1 quality. Golden yellow and red. A handsome, valuable Apple. October to March.

Early Harvest, 1 size, 1 quality. A very fine early American Apple; good for table or kitchen. July and September.

Ecklinville Seedling, *Emperor Alexander*, *Flower of Kent*, and *Golden Noble*. Described already.

Hawthornden (Seaffile), 1 size, 1 quality. A very large handsome Apple, suited for dwarfs or cordons.

Incomparable (Moss's), 1 size, 1 quality. Skin, yellow, streaked with red. A handsome and excellent Apple for culinary purposes. January to May.

Incomparable (Toker's), 1 size, 1 quality. Greenish yellow tinged with red, firm, crisp, and juicy. A very desirable sort, excellent for kitchen. October to January.

Jacques Lebel, 1 size, 1 quality. Beautiful pale yellow and red; a very handsome Apple of French origin, excellent for any purpose. October to January.

Nonsuch (Hubbardston's), 1 size, 1 quality. American Apple, useful for culinary or dessert purposes. October to January.

Nonsuch (Peasgood's), 1 size, 1 quality. A new variety, of great merit for table or kitchen. September to November.

Northern Spy, 1 size, 1 quality. Pale yellow, streaked with red; one of the finest Apples in cultivation; repays attention for kitchen or table. October to June.

Pearmain (Adams'), 1 size, 1 quality, pale yellow, tinged with red; good for any purpose. December to February.

Pearmain (Balchin's), 1 size, 1 quality. A very beautiful Apple raised at Dorking; good for any purpose.

Pearmain (Baxter's), 1 size, 1 quality. A certain cropper, excellent for kitchen or dessert. November to March.

Pearmain (Royal), 1 size, 1 quality. A fine old variety for culinary or dessert use. October to March.

Pomona (Cox's). Ought to be in every collection.

Reinette du Canada. One of the very best.

Reinette du Caux, 1 size, 1 quality. Flesh, greenish yellow, excellent for cooking. October to December.

Reinette Grise, 2 size, 1 quality. Good culinary sort in warm soils and situations. November to May.

Stone's, or *Loddington Seedling*. Extra fine, ought to be in every garden, large or small.

Warner's King and *Tower of Glamis*. To these the same remark applies.

Most of the above kinds are brought to great excellence in the neighbourhood of Maidstone as cordons, but in colder counties it would be best to rely on the varieties enumerated as being suited for orchard trees, or such as the three last named in this list. JAMES GROOM.

ROOT FORMATION GREATEST IN POOR SOIL.

"THURMPTON" states that rich soil does not encourage root growth, nor will roots form till it loses its richness; further on he says no one will find a great quantity of roots in a very rich border, nor has anyone ever top-dressed a Vine border in order to induce the Vines to make roots. If they have done so, they are in error. If he had stated that a highly manured border encourages a gross root growth, which is very liable to perish when it loses its richness, that is to say, when it is little better than a mass of humus, I could agree with him. Has "Thurampton" never found pot plants of either Figs, Peaches, Grapes, Melons,

and Cucumbers so much rooted out into the surrounding plunging material as to necessitate the use of a spade to clear them when their removal was desired? These all seem particularly partial to the rich fresh plunging material. To plant in a loose border composed of fibreless loam and much decayed manure is decidedly a mistake, as in that case fleshy roots like those of Bindweed would predominate. What is required is something to arrest the rambling tendency of such roots, and I should prefer a wall of fresh turves to a body of "fine gravel and sand." Even a well trodden trench of fresh plunging material I should prefer to fine gravel and sand, as this would both arrest the growth of rambling roots and offer a good feeding ground for the many rootlets formed in consequence. At what part of the border did "Thurampton" cut his opening? and supposing this to be through the centre, What effect did the gravel and sand have upon the other part of the

the warming influence of the sun. Not top-dress a Vine border "to induce the formation of roots!" Why, it is the first thing I should do to a border where the roots were gone down to the subsoil or drainage, owing to the lack of top-dressings and rich surface food. At the present time I could point to the top-dressing of a border full of fibres where none could be found last year. Nothing but semi-rotten stable manure was employed, and even the old stems could not resist its root-forming influence. F.

DOUBLE CHINESE CRAB TREE.

(PYRUS SPECTABILIS FL.-PL.)

AMONG deciduous trees that flower about the end of April or beginning of May, one of the most beautiful is the Chinese Crab, which, though in cultivation with us for upwards of a century, is still not so often met with as one



Flowering Branch of Double Chinese Crab.

"very rich border!" If the roots refused to grow in this, how did his Vines manage to exist? or rather what sort of a crop of Grapes resulted? The bar of gravel and sand did not much alter the character of the border. The remedy, therefore, was of a negative description.

With regard to top-dressing Vine borders, I should like to know what this is done for, if not to induce the Vines to make roots. Is it in order that the juices contained in the manure may be washed down to the roots to prevent undue evaporation of moisture, or what? My motives for top-dressing a border are, first, to retain as many roots as possible near the surface, these becoming well established in the manure during the season, and thereby deriving much benefit from it; and, secondly, to prevent binding and cracking. If for the latter purpose only it would not be put on till hot dry weather was anticipated, simply because I should like the border to be exposed to

would expect, for though its blossoms somewhat resemble those of the common Apple tree, its earlier date of flowering renders it distinct and all the more valuable. It is perfectly hardy, and when full grown forms a handsome tree about 20 ft. or 30 ft. high. The flowers, which are large, are pale rosy red, but the buds are deep red, and whether open or closed very showy. The blossoms are normally semi-double, but there are now varieties quite double, and of these that represented by the annexed woodcut is one of the best. It is called fl.-pl. rosea, the colour being, like that of the type, a rosy red. There is also a double white variety, the blossoms of which, like those of the preceding, are fragrant. Both are highly ornamental trees, and desirable on account of the flowers being less fugacious than if they were single. W. G.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

CAMELLIAS are best arranged in a china dish or wide dish-shaped glass; for table bouquets in a sitting room the single kinds are to be preferred; they are easiest to group, and their large yellow centres make them more ornamental. Next to the single in decorative value are the coarser ball-shaped double ones with thick smooth-edged petals. Some old conservatories and orangeries have large trees with a wealth of glossy foliage to spare for cutting, which may be made to last through many weeks' changes of flowers. One leaf before the flower generally turns the wrong way, and had better be cut off. A well-grown double red Camellia, bushy, well set with flowers and not too large, in a silver vase, is very good on the dinner table, single blooms of the same in small silver cups being the only other flowers. Those who have stave Orchids to spare for cutting will do well to try a spray or two of the beautiful rose-coloured *Calanthe Veitchii* in a rather tall shaped glass with three or four leaves of green *Aspidistra*, choosing the leaves rather small, narrow, and pale green. A wide and rather shallow glass bowl holds a quantity of *Laurustinus* flower, cut rather short, with sprays of its dark foliage standing well above it, and a few rosy scarlet *Pyrus japonica* nestling low in the mass of white, red-stemmed flowers. Small boughs of variegated *Acuba*, the leaves large and well marked, are handsome alone in large jars of blue china. In pots we have berried *Acubas*, *Aralias*, and *Libonia floribunda*.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

THE pendulous blossoms of *Thrysanthus rutilans* look bright and attractive just now suspended around the edges of trumpet vases. They could be advantageously used in conjunction with *Calanthe vestita* around the edges of any tall vase or epergne as a central arrangement to a dinner table, filling up the centre of the same with spikes of *Calanthe Veitchii*, a few blooms of *Lælia anceps*, and the same of *Eucharis amazzonica* around the last named *Calanthe*. This would give an effective centre-piece that no lover of choice exotics would despise. Another change as a centre-piece for a moderate sized table or for the drawing-room may be made by choosing a well variegated example of *Pandanus Veitchii* as good as it can be had in a 4-in. pot; from this it may be removed and placed in the centre of a soup plate for want of a better receptacle. Fill with a little sand to keep the plant steady, and finish off either with good Moss or some fresh *Selaginella* into which may be inserted a few bulbs of *Tulips* in flower, say, for instance, *Duc Van Thol*, scarlet and white, allowing the former colour to slightly predominate. With these the *Pandanus* will show itself to good advantage. As a finish a few plants of a durable kind of Fern (*Davallia*, for instance) would greatly improve it. This would prove a lasting arrangement and be well adapted for a room kept at a maximum temperature. Of hardy subjects the pendulous blossoms of *Garrya elliptica* are now most attractive. A few sprays of these would associate well with the bronzy-coloured points of *Berberis Aquifolium* and *Jasminum nudiflorum*. *Rhododendron Nobile* in the open air has developed several trusses of flowers; these look well arranged by themselves with their own foliage. The smaller flowered kinds of *Azaleas*, as *amœna*, *obtusata*, and the various hybrids raised therefrom, are useful in a cut state, lasting longer than many of the large flowered varieties. They all answer well for specimen glasses, and can oftentimes be better arranged therein than in larger receptacles, owing to the necessity of allowing only a short stem, especially in the case of small plants. For button-holes the various kinds of *Epacris* are very useful. *Erica melanthera* also looks well used with the former,

and both possess greater durability than many forced plants.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Acanthuses.—These are hardy herbaceous perennials, but so distinct in habit of growth, noble foliage, and uncommon form of flower-spikes, that for ornamental gardening they are well qualified to rank along with the finest sub-tropical plants; indeed, with us they have to do duty in such positions, and generally come in for at least a large share of admiration as the tender sub-tropical plants themselves that can only be raised at a large expenditure of time and money. Taking this fact into account, it will be seen how desirable it is that as much use as possible should be made of such plants, in order to obviate to a proportionate extent the use of tender and short-lived ones. We grow two kinds of *Acanthus* only, viz., *A. latifolius* and *A. mollis*. They are easily propagated by seed or division. Seeds sown in light loam quickly germinate in a warm house, and if sown now will make large plants for putting out early in May. If propagated by division the old plants had better be lifted, cut into medium-sized pieces with an edging iron, and at once planted in their permanent positions. Either variety makes a noble plant for lawn planting, and when thoroughly established in such spots, there are no plants that require so little attention or produce better effects. They make good marginal plants in beds round tall-growing sub-tropicals, but from such spots they generally have to be moved annually—treatment which they dislike. They are essentially permanent plants, and should therefore be given positions accordingly, consisting of thoroughly prepared soil, which should be stiffish loam enriched with plenty of good manure.

Spring flowers.—The weather being so unusually mild, these are springing up in every direction, and being so forward, a severe frost would be likely to do much injury. It would be impracticable to protect all, but the most valued should have that attention. *Hyacinths* and *Tulips* are most liable to injury, and the nearest of all protections for them is Cocoa-nut fibre refuse. Where, however, the bulbs are planted in a ground work of *Sedum* or *Saxifrage*, this protection cannot be employed; therefore, under such circumstances, a covering of Yew or Laurel boughs must be used. The ground being so wet, the slightest frost will be sufficient to raise or rather to loosen autumnal planted spring flowers; therefore their well-doing will be best assured by well firming the soil about them after each recurrence of frost. Over our reserve stock of such plants and dwarf hardy summer bedders planted on warm borders in the kitchen garden we run a light roller as soon as the state of the ground after the frost will permit, an operation that seems to be doubly beneficial, as it firms the plants and apparently conduces to their more rapid lateral extension. Certainly this is the case with such plants as *Herniaria glabra*, *Mentha Pulegium*, *Cerastium arvense*, *Sedum lydium*, *Thyme*, dwarf *Veronica*s, and various *Stenocypus*.

Herbaceous plants.—Many kinds of these are also too far advanced in growth for the time of year, but that should serve as an incentive to get all removals and rearrangements completed as soon as possible, for, though they may with safety be transplanted at almost any season, it is but reasonable to suppose that they will do better if moved before growth has become too active, not to mention the importance of their roots getting well established in the fresh soil before dry weather checks root action. The reaction in favour of this class of plants still continues, and being combined with the present prevalence of æsthetic ideas with which many of these plants are associated, there is some danger that the cultivation of many kinds little better than weeds may be resuscitated. Intending planters should therefore

only select kinds of real merit. As to the best mode of arrangement, tastes vary, some preferring to plant single plants in straight lines, the tallest at the back of the bed or border, and the dwarfier in front, and for a formal border this plan has some merit; we, however, prefer planting them in groups or clumps of moderate size, say three plants in a group of *Pyrethrum uliginosum*, double *Sunflower*, and similar growers, five or seven plants of *Spirea Aruncus* and *Anemone japonica*, and in still larger numbers of the dwarfier growing kinds. I would then advise the filling in of every vacant space possible with surface-rooting plants, and particularly round those varieties that are least furnished with foliage. The carpet thus formed adds greatly to the general effect of the arrangement. I may add that the theory just now being advanced as to the "poorest soil producing the largest quantity of roots" should not be put into practice in the case of these plants, deep tilth and the richest soil being the two most essential matters after the selection of varieties to ensure satisfactory results.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Ferns.—These are best potted a short time before they commence growing, for if their roots are subjected to the disturbance unavoidable in repotting after growth has commenced, the first fronds produced afterwards are sure to be deformed. In the case of Ferns, the habit of the species has much to do with the pot room required. Tree kinds of a strong vigorous character have often much more root room given them than they need or should have, the result being that the fronds grow to such a size as to become too large for the houses in which they are located, and when over-grown they never look well, and often injure smaller sorts that usually have to be accommodated under them. There are no plants that can be kept so long in a healthy state with limited root space as *Tree Ferns*. They will continue to thrive and look well, even when their roots have so filled the pots or tubs that there literally seems scarcely any soil remaining. Under such conditions they should, however, be regularly supplied with manure water during their season of growth. Those that are of a spreading habit, like the *Gleichenias* and *Davallias*, must have sufficient space for their creeping rhizomes to extend, or they are sure to get injured, their surface stems being forced to break back, which they usually do weakly. Ferns possessing this habit of growth should not be divided into too small pieces, or they suffer considerably. This is especially the case with *Gleichenias*, the creeping stems of which appear to be incapable of forming fresh roots when they have assumed a hard woody state. Species of a close tufted habit, such as the *Adiantums*, will bear dividing into much smaller pieces if required. Where Ferns are planted out in beds and on imitation rockwork it is equally important that they should not have more root room than is sufficient to support them in a healthy state. If care is taken in preparing the places where each is to be planted it is an easy matter to confine the root space for them proportionate to the requirements of the individual plants. Ferns are not so particular as to soil as many plants; most of them succeed in either peat or loam. As a rule, however, they make the best growth in peat, but these are intended to be grown for cutting, such as *Adiantums* of the cuneatum section, and the different kinds of *Ferries* that are adapted for this work, are best in loam, as in that the fronds usually stand better in a cut state. Whichever is used the soil must be kept open by a sufficient addition of broken crocks or coal cinders, the latter being quite as good as the former. In all cases Ferns ought to have a thorough cleaning from insects, such as scale or mealy bug, before being potted, as the mature growth will bear a stronger dressing with insecticide than could be used later on when the young fronds have made their appearance. Where thrips have been numerous it is a good plan to dip the fronds in strong tobacco water or to syringe them with it, as even if none

of the living insects are present, there are almost sure to be eggs that will come to life when there is an increase of heat.

Palms.—Such of these as require a warm house to grow in are rarely quite at rest even in the winter season, unless the temperature is kept so low as to check all growth, and the most dormant time should be chosen to pot those that want it; but Palms, like Ferns, do not need so much root room as is often given them. When too much root space is allowed the strongest growers in particular over-shade everything near them, and unless the house in which they are grown is of unusual height, when the roots are not kept within limits the leaves grow to such a size that they seem to be always struggling to get through the glass. Palms will succeed in almost any kind of soil, but heavy loam, almost approaching the consistency of clay, is the material which they like best. For all purposes where plants with green foliage are required there are none superior to Palms, inasmuch as, with the elegance of Ferns, their leaves possess a stout texture which enables them to bear without injury the wear and tear of frequent removal when used for grouping with flowering and other plants in halls, corridors, or rooms. A still further recommendation which Palms possess is that a good many species which come from warm countries may be kept for a considerable time in a much lower temperature than that in which they are indigenous. Even such elegant kinds as *Leopoldina pulcher* (*Cocos Weddelliana*) will bear keeping through the winter in a temperature from 48° to 50° without showing any ill effects therefrom, the only difference being that so treated their growth is comparatively slow, but that will generally be looked upon more as an advantage than otherwise. *Chamedorea gracilis*, *C. graminifolia*, *C. glaucophylla*, and *Areca lutescens* are beautiful habited species that will bear a lower temperature than the countries from which they come would lead one to suppose. If at all affected with insects an effort should be made to get them clean whilst in a small state, as the work involved is much lighter than when the plants get large.

Lycopodiums.—Where these are cultivated in pots they require to be annually potted, or, if they do not need more room, they should have the drainage seen to, as, in common with all plants that want much water, there must be free egress for it, or they cannot be kept in health.

Cycads.—For conservatories where a little higher temperature is kept up in winter than that of an ordinary greenhouse, there are few plants that can be used with better effect than Cycads. Amongst them there are now numbers of kinds that differ so much in size as to make them suitable for houses of different sizes. The old Cycas *circularis* is well known, and when with a full head it has a sufficient length of stem, a condition in which it is now imported, it is one of the best subjects for the centre of a large house. The many varieties of *Encephalartos* are alike adapted for use in the same way. Amongst other Cycads the most suitable for this purpose, in addition to *C. circularis*, may be named *C. media*, *Encephalartos villosus*, *E. cafer*, *E. Vroomii*, *Macrozamia plumosa*, and *M. spiralis*. There are a good many varieties of the above section of the Cycad family alike adapted for use in warm greenhouses and conservatories, but those named will in most cases be found sufficient, and may be relied on as distinct and handsome kinds that will add much to the appearance of any assemblage of plants with which they may be associated.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—Whatever may be said against the unreasonable state of the weather as regards outdoor vegetation, it is certainly very suitable for Orchids under glass. We have had more sunlight than usual, and the temperature has been kept up with the least possible amount of artificial heat. I ventured a short time ago to urge the importance of getting the potting of all

the occupants of this house done that required it. At that time we were busy with our own, and have now finished them. The largest proportion of Orchids require as potting material either Spagnum alone or mixed with turfy peat. In either case a liberal proportion of broken bits of charcoal and clean potsdres should be added. Many, too, do not pot firm enough—especially if Spagnum only is used. The best grown *Vandas* and *Aerides* I ever saw were in pots quite three parts filled with drainage, with the Spagnum pressed very firmly on the top. The Moss should be well washed before it is used, and all extraneous matter should be picked out of it. After washing we lay it out to dry for a few days; but it must not be dried so much as to kill it. In potting with peat added to the Spagnum, this is also pressed together rather firmly. It ought also to be noticed that some plants have the roots clinging so firmly to the pots, that they cannot be turned out without either causing great injury to the plants, by breaking or lacerating them, or breaking the pot. The latter course we take rather than injure the roots. Now that repotting and surfacing are finished, and most of the plants are pushing fresh roots, a rather moist atmosphere and also a higher temperature are desirable. With the fresh Moss, small snails may have been introduced, and it will be necessary to watch for them every night, with a good lamp, as though small, they soon eat the ends off the young rootlets, and they also get at those immediately under the surface where they are not readily observed. This is a good time to repot *Cypripediums* requiring a warm house. *C. Dominicanum* seems to require a good shift every year; considering what the parentage of this is, one would not expect that it would succeed best in the warmest house, but that is the case. We have also repotted *C. niveum*, using a liberal proportion of turfy loam in the compost. *C. Lowi*, *C. levigatum*, and *C. Stonei* we also grow in the warmest house, and as a rule it is best to turn them out of their pots and repot them annually.

Cattleya house.—*Cattleyas* that require repotting should now receive attention; where plants of these are doing well, a large proportion of the roots will be growing over the sides of the pots, the insides of which will also be well furnished with roots. In a case of that kind it is quite necessary to break the pots in order to preserve the roots. In potting such plants as may have made a quantity of roots outside I would not cover them with compost; on the contrary, I would have at least the greater portion of them outside the compost. I have noticed sometimes that when such plants have had all their roots potted in peat and Spagnum they have not done so well as previously. *Miltonias* in some cases are now started into growth, and they are also making young roots; therefore, such as require repotting should be seen to at once. *M. candida* requires much the same treatment as *Cattleyas*. It should be repotted in peat and Spagnum, removing the old rotten compost; we keep the roots moist all the year round. The section of which *M. Morelana* and *M. spectabilis* is the type does not require so much depth of compost, and should be potted in pans, or if pots are used, they ought to be filled to within 3 in. of the surface with drainage, and it may be necessary to secure them to the compost with pegs. The peculiar yellow tint of the foliage of these *Miltonias* lead many to believe that they are not in good health, but this sickly hue is common to most of the species, and is most apparent when the plants are in a light position near the glass. Newly imported *Cattleyas* should be potted in clean crocks, without any Spagnum or peat. The crocks should just be kept moist with tepid water, taking care not to wet any part of the plant above the drainage. When fresh roots issue from the base of the last formed pseudo-bulbs a portion of the crocks should be removed, and some of the usual potting material substituted. If *Cattleyas* arrive in pretty good condition, and have not been caught by the frost, they soon become established. *Lælia purpurata* and *Cattleyas* of the elegans and guttata type are included amongst those requiring the treatment just recorded. There

ought now to be a good many *Dendrobiums* in flower, and a succession of them should be kept up from now until midsummer. Those still out in cool houses must be kept dry at the roots, and it is best to gradually inure them to a higher temperature, as if transferred from a low to a high temperature suddenly some of the species will lose their flowers prematurely.

Cool houses.—Repotting ought also to be proceeded with in this department while the weather continues favourable. We have potted all our *Masdevallias* that were not potted last summer. These very speedily make large specimens, but when grown on for seven or eight years without being divided the amount of flowers produced is not in proportion to the foliage. We have plants of that age that have now been divided into eight or ten parts, and each of them has been potted in 4-in. or 5-in. pots. *M. Harryana* is the most vigorous grower, and, taking it altogether, certainly the best of them. They also vary very much in colour and form of flowers. *M. Veitchiana* when well grown is also a very fine species. It does best divided and potted like the other. The leaves ought to be carefully sponged over with soapy water to clear them from dust and to prevent the attacks of thrips. I find in repotting the *Odontoglossums* that nearly all of them are just starting to make fresh roots, therefore all requiring repotting have received attention in that way. I would rather repot when the young growths have started a little, but where there is a large collection it is not possible always to repot or to in any way attend to plants on the very day when they require it. In instances in which any of the plants had flower-spikes in course of development, it was thought best not to repot them until they had passed the flowering period. *O. cirrhosum* is either in the state in which the growths are completed, or nearly so; the flower-spikes are in course of development, and therefore only a few could be repotted. The flower-spikes of *Oncidium macranthum*, which luxuriates in the coolest house, are also in course of development; a few of this species were potted, but the others will not be done until the flowering period is over, probably in August. Slugs are very fond both of the flower-stems and the succulent roots of this *Oncidium*, and therefore must be carefully watched, and when found destroyed this species succeeds well in pots with rather more drainage than is required for *Odontoglossums*. It will also thrive on a block of wood, but in that case more care is necessary as regards watering.

PROPAGATING.

This is a good time to make the principal sowing of Fern spores; when sown now they have the whole of the growing season before them, whereas if sown in summer they frequently fall a prey to damp during the ensuing winter. The most critical time with seedling Ferns is when they require pricking off for the first time, which will be as a rule in about a couple of months from the time of sowing. A full account of the mode of sowing Fern spores and their after treatment is given in THE GARDEN of October 15 (p. 404). Old plants of *Chrysanthemums* intended for spring propagation must be protected from frost, but should have all the air possible, or a weak growth and consequently puny cuttings will be the result. *Chrysanthemum* cuttings put in a month ago will need attention in the way of removing decaying leaves; if the foliage is much inclined to damp, give air for a little time each day till the damping is arrested. Where it is desired to increase the stock of *Bambos*, such as *Fortunei*, *Metake*, *Simoni*, and *Maximowiczii*, the *Eulalias*, and similar plants, they may now be divided and placed in a frame, where out of the way of frost and heavy rains they will start into growth in spring without a check. If not already done no time must be lost in securing pieces of the roots of any plants that are propagated in that way, such as nearly the whole of the hardy *Primulas*, especially the varieties of Sieboldi.

Senecio pulcher increases readily in this way, all that is necessary being to cut the roots up into pieces about 1 inch in length and dibble them in well drained pots in a perpendicular position with the upper part just below the surface of the soil. Placed in a gentle heat, they will break freely and grow satisfactorily. Stock plants of any subjects that it is desired to propagate largely in view of the coming summer should be introduced into heat to push them into growth, and thus get an early supply of cuttings. Cuttings of most things required for summer decoration strike without much difficulty, and where there is not a propagating house for the purpose a close case can easily be fixed in any house which is kept at a sufficient temperature in which such as *Fuchsias*, *Bouvardias*, *Heliotropes*, *Lobelias*, *Alternantheras*, *Verbenas*, *Coleus*, and the like root readily. For such bottom heat is not necessary, provided the temperature of the house is kept up to a sufficient height. For spring propagation I employ the following method with great success: In a stove there is a stage about 4 feet wide in a good light position near the glass; on it is placed a good layer of ashes or Cocoa-nut fibre, over which the propagating cases are set. They are made the width of the stage, and resemble miniature three-light pits, so common everywhere; the sloping lights obviating drip, and a width of 4 feet is very convenient for closely examining the cuttings. The cases may be made very light for the convenience of shifting them about when required. *Pelargonium* cuttings are much better on a shelf than where moisture condenses on them. T.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Cherries.—When the trees in the early house show signs of opening their flowers fumigate with Tobacco paper on a calm day; repeat the following morning if necessary, and syringe well to free the buds from insects. Examine the borders, and give sufficient tepid water to keep them in a satisfactory condition until the fruit is set. Discontinue syringing during the time the trees are in flower, and let external conditions regulate the damping of walls and other surfaces, as Cherries, like Peaches, set best in a well ventilated house free from stagnant moisture, but at the same time not so dry as to shorten the flowering period by causing the petals to drop prematurely. With the thermometer now standing at 50° in the open garden the most gentle circulation through the pipes with liberal ventilation will suffice, but in the event of a change to colder weather 40° at night to 50° by day will be quite high enough. The succession house started early in this month may be brought on by warming the pipes for an hour or two every morning, by syringing with tepid water when the temperature begins to rise, and by closing from three to five o'clock every afternoon. If late kinds in pots and tubs are still out-of-doors get them housed, and place nets over the open ventilators. Young trees may still be taken up and potted in strong virgin loam. Let the pots be clean and well drained; ram the soil firmly, and plunge in a warm airy situation out-of-doors for the season, unless house room is plentiful and not better occupied.

Plums.—In many places these are grown with the Cherries, and they do very well through the early stages, but the time comes when the latter require more air and less moisture than would be good for the Plums, and on this account it is best to keep them separated by means of a glass division placed across the house, and to have the ventilating gear made to work separately in each compartment. If kept clean and brought forward in a low temperature with plenty of air, the Plum is one of the most prolific and interesting fruit trees that can be selected for growing under glass, but anything like hard forcing at any time will prove fatal to the crop. When grown in pots the trees soon become very fruitful, and unless timely thinning of the flowers is attended to the

uninitiated may find the favourite at the outset the least profitable at the end of the race. Where glass is plentiful, the cost of fuel being trifling, a whole section should be devoted to that kind of dessert Plums—the old Golden Drop. In cold districts or bad seasons it does not always lay on its fine amber colour, without which it never attains its proper flavour, but with a glass roof over it every fruit becomes a sweetmeat, and may be kept hanging for weeks and months after it is ripe.

Figs.—With the weather all in favour of rapid progress, the fruit on early pot Figs is now swelling fast, and the young tender leaves are beginning to expand under the genial warmth which mild sunny days enable us to secure without having recourse to sharp firing. Old trees which have filled the space allotted to them will soon require stopping and thinning in order to insure an even spread of foliage without crowding, as it is more than useless having more leaves than can be exposed to the action of sun-heat and light. Younger trees having space to fill may be allowed to extend in every direction, when the firm, short-jointed growths so made will produce a succession of fine fruit after the earliest crop is gathered. The temperature of this house may now range from 58° on mild nights to 70° by day, when air must be admitted and taken off in time to run up a few degrees higher on fine afternoons. Pay particular attention to watering, and while guarding against clogging the fresh compost before it gets filled with new roots, see that the trees do not receive a check through becoming too dry. Syringe backwards and forwards twice a day when fine, and damp the floors only on dark, dull afternoons when there is danger of the foliage remaining wet after nightfall.

Succession houses started at the commencement of this month may be kept at a temperature of 50° to 55° at night, with a corresponding rise by day. Syringe well and see that the inside borders are brought into proper growing condition before the terminal buds burst into growth. Economise fire-heat by the use of fermenting material placed on the borders, and set ammonia at liberty by turning it at short intervals. Give an abundance of air to the latest houses and wall cases. Prune, or rather thin out, the shoots and wash well with soapy water, but defer tying and nailing in for the present. Put in eyes or cuttings and treat as Vine eyes. If cuttings are preferred the buds should be removed from the base, otherwise they will give much trouble by throwing up suckers after the trees get established. Also pot on young stock, using rich calcareous turf with a liberal admixture of old lime rubble and bone dust, and place the plants in an intermediate house for fruiting through the late summer months.

Strawberries.—The early forcing of Strawberries, like Cherries and Plums, requires great patience and unremitting attention to details. Where forcing is commenced in November, many good plants are sacrificed for the sake of a few Strawberries, which neither give credit to the grower nor pleasure to the consumer; while by deferring this work until the end of the year, a better supply of finer fruit would be secured until Strawberries are ripe in the open air. For the use of town-going families, April and May are the months in which a good supply of the finest kinds, including the old British Queen, should be in force, and in order to secure this supply, plants of two or three sorts should be selected from the cold plunging pits, every ten days properly prepared by washing the pots and top-dressing with rich loam and manure preparatory to placing them in the pits or houses in which they are to be brought forward. In this dark, variable climate it is difficult to give the exact temperature at which the forcing pit should be kept. At the present moment plants in the open air are in a state of excitement; last year at this time we had 30° of frost; two facts which show that the successful forcing of all kinds of fruit must be conducted upon the give-and-take principle, by running up to 55° or

60° on mild afternoons, and allowing the temperature to descend to 40° on cold nights. When the first batch of *Héricart de Thury* begin to throw up their flower-stems, a little extra warmth may be given to them through the day by shutting up early with solar heat and moisture from the syringe, but air must be again admitted at night, otherwise the foliage will become drawn and incapable of performing its proper functions when the fruit begins to swell. When in flower, remove the plants to the lightest and most airy part of the structure, and discontinue syringing, but keep them regularly supplied with tepid water, choosing the early part of the day for the operation. Remove weak side blossoms and fertilise with a small brush when the day temperature has reached the maximum.

Hardy fruit.—A continuance of unusually mild weather is beginning to tell unfavourably upon all kinds of fruit trees, particularly the easily excited Peach and Cherry against walls, Currants and Gooseberries upon open quarters, and although the latter are regarded as of less value than the former, it is questionable if the loss of the crop of bush fruit would not be quite as severely felt as that of the Peach and Cherry. Under these circumstances steps should be taken to keep everything as backward as possible, as well as to have protecting material of various kinds ready for use when the proper time arrives. Peaches and Nectarines are, of course, unnailed, pruned, and securely supported by means of stakes and tie some distance away from the walls, and in this position they must remain until we have a change in the weather, or the rapid swelling of the buds press on the annual tying or nailing in. In the absence of frost a little extra care in washing the walls and trees of all kinds to free them from the larvae of insects will be well repaid, the more so as birds of many kinds, friends as well as foes, have not recovered from the decimation of the past winter. For stone fruit trees after they are nailed in, a barrel of soap-suds from the laundry, with two or three pounds of sulphur and a like quantity of soft soap added, will make an inexpensive wash, which may be applied freely without fear of injury to the most tender buds.

If **Gooseberries** have not been pruned, the sooner they are done the better, as the crowded state of the trees induces early growth, and pruning checks it. An idea prevails that birds are not so likely to spoil an unpruned tree, but it matters little whether the tree is pruned or unpruned if a pair of bullfinches find their way into it. The safest and best way is to prune and dress with a mixture of soot and lime reduced to the consistency of cream, and passed through a fine sieve to admit of its being taken up and discharged by an old syringe. If time admits, trees in orchards should be thinned out and divested of Moss which may have gathered on the stems and branches by scraping with a piece of hoop iron. When this has been done, wash with the composition recommended for Gooseberries, and top-dress the roots with fresh soil, road scrapings, or rotten manure. Select clean ripe shoots from healthy trees for grafts, and lay them in under a north wall to be ready for use in March or April. For large standards which have been headed back, two-year-old shoots are generally used by experts in this county, and it rarely happens that a graft fails.

PRUNING AND MANURING ORCHARDS.

J. GROOM, LINTON PARK.

This is a busy time in orchards, or rather I should say in orchards that are treated so as to be enabled to bear good crops. The pruning of all fruit trees should be completed before the sap is in motion if we except Nuts, which are usually left until the tiny little female blossoms can be discerned; then all useless spray is cut, and a Kentish Filbert or Cob Nut bush looks almost as bare as a Vine when pruned, yet the crops gathered testify to the soundness of the practice. In counties in which Filberts are allowed to grow on the extension system the fruit is neither so numerous nor so fine. All young Apple, Pear, Plum, or Damson

trees are now having their strong leaders cut back; although we hear of cases where shoots left at full length have set fruit like ropes of Onions, extension is not found to answer in practice; the trees require strength of branch to carry a crop as well as willingness to do so, and the only way this can be secured in the case of young trees is to stop the erect shoots at least one-third of their length. We have ample proof of what the result is when this is neglected. The trees rush upwards instead of filling out laterally; the first crop bears them down so much that the limbs have to be supported, or they inevitably get broken off, and nothing is gained as regards quantity or quality of fruit. If the rampant erect shoots are checked in their upward career the weakly undergrowth comes into bearing far more quickly, and the fruits are finer. Market growers look to quality as much as quantity, and if pruning did not pay they would not do it. One sieve of good high-priced fruit is worth two or three of seconds, and the expenses of transit and commission are the same in each case. Manuring is also on a liberal scale; where are the orchards attached to private gardens that are supplied with manure at the rate at which they are by market growers? We have, however, lately had some sensible remarks on the folly of keeping a garden half starved. That is bad enough, but a starved orchard is worse; it can yield nothing. There are more reasons than ungenial seasons for barren fruit trees; and if we would but take that old advice, viz., "I will dig about it and manure it, and look for fruit another year," we might yet find that the seasons were improving, at least as regards fruitfulness. Some growers have had plenty of fruit, even in bad seasons, some none; moderate pruning and more than moderate manuring is the secret in the case of those who are successful.

KITCHEN GARDEN. R. GILBERT, BURGHEY.

It is neither desirable nor practicable for gardeners to save their own seeds, as they can buy them both cheaper and better than they can grow them, taking all kinds of seeds into the question. Nevertheless, a few special things always grow for seed. Among them, and what is the most useful, is White or Seakale Beet, which I can never get true from the nursery. I therefore select a couple of the best and pot them, placing them in a cold house where they ripen their seed properly between October and Christmas. We use this Beet as Seakale, grown in rich land. The midrib is as white as snow, and makes a beautiful looking vegetable. Of Onions, I always seed a small quantity merely to have a few specially large bulbs. I do not know a more beautiful sight in the kitchen garden than a border of Onions when kept trim and free from weeds. Celery, again, particularly the white variety, I can always get true from home-grown seeds. In the forcing department keep up good successional crops of French Beans, bearing in mind that good French Beans at this season cannot be too plentiful. Cucumbers are already feeling the good effects of the warm, genial weather. Shut up early and give air early if at the expense of a little fire heat. It keeps the house sweet and the atmosphere moving and healthy; 65° is quite enough for the evening temperature. Plant Potatoes in frames if not already done, and keep up good supplies of Tarragon and small salads.

Certificating plants.—I am often puzzled to know on what principle certificates are granted for plants at our leading flower shows. I have always been under the impression that these certificates were for new plants only, but such seems not to be the case. An example occurs at the recent meeting of the Royal Horticultural Society, where a first-class certificate is awarded to *Lygodium Forsteri*, a Fern that has long been grown in this country. It appears in "Fern Manual" (1863) Smith's "Ferns, British and Foreign"

(1866), in the Kew lists of recent years, and in various London and other nursery catalogues. It may be, however, that certificates are granted for plants old as well as new, but such, I think, is not the general understanding. I observe that Mr. Moore put the committee right as to the correct name of the Fern.—P. NEILL FRASER, *Murrayfield, Edinburgh.*

NOTES AND READINGS.

It is fast becoming the wish of the gardener that the "pleasure grounds" so-called were outside the railings of the garden. In recent years the garden has taken a wider scope—been extended to the woods and drives—as at Longleat, for example, and the time is maybe not far distant when the name of gardener and woodman will be synonymous. The extension of flowers, shrubs, and ornamental trees to our parks and woods does certainly lessen the need for those extensive enclosures which have hitherto been denominated "pleasure grounds"—in the majority of cases so indifferently managed and kept as not to present much difference from the park outside. The now recognised wild garden and shrubbery might take the place, to some extent, of the presumably dressed grounds, and the garden be devoted more exclusively to its purpose, and where we want to do many things better than they are done at present. Our ideal garden corresponds to that of the "small farm well tilled" of the old song, and what one would like to see is better collections better grown, and greater variety more tastefully and naturally disposed, and receiving as much attention as they may need.

If someone would only start a model garden of this kind, to show how much might be accomplished by sufficient efforts well directed in some average county of England, it would do more than thousands of read lessons to turn gardening into the right path. New and better paths might yet suggest themselves, and perhaps the time will come when fruit trees in flower and in fruit will take a prominent place in our shrubberies where they should rank equal at least to many of the best things there now. We should like, for example, to know where a more beautiful flowering tree than the Morello Cherry can be found in spring, or a more magnificently berried one than it in autumn? and the same might be said of other subjects. We are mending, but the scope of garden reform is not yet fully realised.

In connection with this subject the woodman must be more of a gardener than heretofore, and he must read gardening papers, which he seldom does. Proprietors should see to this and place the horticultural papers in the hands of their workmen who have hitherto been left far behind in the race with their brethren of the garden, and in a profession, too, which should almost be common to both. THE GARDEN appeals to the woodman as well as to the gardener, but it does not reach the former to the same extent; is a sealed book, in fact, to many. In the majority of cases the young woodman receives no preparatory education more than he may acquire in the place in which he is brought up, for he does not travel like the gardener, and much of the ornamental and landscape gardening work of this department is done by outsiders or suggested by his more enlightened employers and carried out under their superintendence.

A grand example in its way is the Chiswick vineery lately noticed in a contemporary; the turning of the house which was formerly a conser-

vatory into a viney was a good idea. It should serve as a model for Vine growers, but the house should run north to south. All vineeries should be lofty if they have to be curtailed in length. Structures like that at Chiswick are more economically heated and more easily kept at a uniform temperature than small houses. Such structures present good opportunities for experiments in culture and training. It is stated that the Vines in the north border thrive worst and give the least returns, but that can easily be remedied by making the south side border the only one, and training the Vines up one side and down the other, or by bringing the roots of the north side inside. It is in all probability the shaded and colder border that is the cause of the difference.

The discovery of Mr. Barron that the berries of the Vines with their roots outside were hampered, while those on the inside ones were not, goes far to prove the correctness of the views of those who have maintained that the hammering was due to culture more than anything else, and a sign of excellence. It affords singular testimony to the superiority of outside over inside borders too. A suspicion is beginning to dawn on many cultivators' minds that the Vine does not take kindly to inside borders, or to heated ones either, and many growers have paid for their whistle in relying too much on the one or the other.

The account of our fruit and vegetable imports is not satisfactory. They go on increasing at an enormous rate. Not many years ago Oranges and Lemons were imported at the rate of two to one of all other raw fruits, but now the latter take the lead. Twenty years ago miscellaneous fruits, exclusive of Oranges, were valued at £35,000; in 1880 they reached £370,000. Among vegetables Potatoes alone are now imported to the value of nearly £3,000,000. Facts these for market gardeners and farmers. The Dutch and German Potato trade has now reached enormous dimensions, the Hull and Grimsby trade corresponding to the American Apple trade at Liverpool and elsewhere. These foreign Potatoes are cheap and good, too, and, as a rule, wonderfully free from disease and good keepers—packed in bags in small quantities, portable, and easily stored. In small shops in rural districts it is no uncommon thing to see large quantities of these stored after this season of the year. The foreign grower wisely sticks to a few sorts, and, as Mr. Bunyard puts it, the sorts that pay. Home cultivators want more of the thrift and common sense of their neighbours, less "science," and fewer sorts of Potatoes.

A friend asks us how the Mushrooms in our markets so often cook like a piece of corduroy. All that can be said in reply is that well grown and timely gathered Mushrooms should not be either tough or ill flavoured, but shop Mushrooms are often both. Mushrooms do not improve by keeping, and they are not improved by being allowed to grow till they turn up at the edges. The piles of Mushrooms like heaps of Potatoes at the Halles Centrales, Paris, struck us as having been grown quickly and gathered young; they are large "button" Mushrooms, in fact gathered daily before they show much of their gills. Such Mushrooms are always tender and good, but after all, a good deal depends on the cooking. Large and good Mushrooms of course mean high culture and good spawn to begin with.

In a paper just to hand I see "F. W. B." states that some time ago well directed attempts were being made to exterminate the *Odontoglossum Alexandrie* in South America by certain

nurserymen in order to create a monopoly. It is not creditable to the trade if this be true, but the extent of the purchases and importations lately by some firms countenances this idea. "F. W. B." thinks there is no danger whatever of this species being extirpated, as thousands of seedlings spring up where the older plants are collected; therefore we have only to wait for the new crop growing. We hope this is true, but are those bent on extermination likely to spare the seedlings? and what is likely to happen while we are waiting? The mention of the seedlings in such abundance, however, prompts the enquiry, Why not collect the seed and raise stock in that way here? The thing has never been suggested, so far as I am aware, before, but it ought to be practicable.

The same writer extols the merits of such varieties of the *Chrysanthemum* as *Elaine* over the more formal varieties, and he is quite right. It is the ladies' *Chrysanthemum par excellence*, a pure simple flower of striking character and beauty that strikes even the most bigoted florist. We know of gardens where it is cultivated more extensively than any other for decorative purposes of various kinds. PEREGRINE.

TREES & SHRUBS.

THE MAMMOTH TREE IN ENGLAND.

THE evergreens of our Pacific coast are quite at home in England, and are a wonder to any tree-lover who visits that country. The "Big Tree" of California, *Sequoia gigantea*, barely exists in the Atlantic States, while in England it is one of their most rapid growers.

So writes our contemporary the *American Agriculturist*, but not quite correctly in its estimate of the big trees with us. They please people who do not look beyond the aspects of pretty young trees in nurseries. There is no greater mistake than supposing the Mammoth tree to be hardy in England in any useful sense. Thousands of pounds have been spent in these and similar trees—we might say hundreds of thousands—without the slightest chance of a good result, except in two or three spots in the length and breadth of the land. There are, of course, favourable places in the south, and in mild hilly districts, where the tree goes on longer than usual; but even in such any one who has ever seen it in its native country, even in a young state, must see a wide difference, and signs that the tree is not really at home in England. It wants a warmer and more genial climate; otherwise it will die. There are hundreds of dead and half-dead specimens in our gardens and parks now to prove it, and where they are not dead, who cares for the aspect of a poor, thin, half-leaved evergreen? The attention these trees get is beyond anything the people need give to trees that are really hardy in our country. Every care as to drainage, as to mixed and select compost, often brought at great expense to the spot, is given; a sheltered happy situation, in addition to these advantages, helps to keep the plant in condition for a few years. Then it gets outside the little bit of fancy-prepared compost, and perhaps its head gets above the wall or surrounding shelter; then the first very cold easterly breeze will probably settle it for years. It is only when a tree fares on the common soil of the country and meets the inevitable conditions of the climate that it may be said to be fairly tried. Certain people, accustomed to look at nicely furnished nursery specimens, have no idea at all of what a really fine tree is. From an artistic point of view the effect of the young pyramidal specimens, so far as they remain healthy, is as poor as it can be. The lamentable fact is, as has just been stated, that very considerable means have been wasted on these conifers, which,

devoted to really hardy subjects, would have given us lasting and satisfactory results.

Osmanthus ilicifolius.—This handsome shrub does not appear to be planted so generally as it deserves to be. The green-leaved is more vigorous and spreading in its habit of growth than the variegated kind, and is, I think, somewhat hardier, as it passed through the late severe winter quite unimpaired, whereas the variegated sort lost a good deal of foliage after the frost, though even then it did not suffer so much as *Portugal Laurels*, *Aucubas*, and other shrubs usually considered to be hardy. The *Osmanthus* does not seem to be at all fastidious in the matter of soil. At this place it grows freely in a retentive loam, and is equally vigorous in a prepared peaty soil. Our largest plant is 14 ft. in diameter and 10 ft. high, and forms a rather dense bush, but with a free branching habit of growth. The flowers, which are white, very small, and sweetly scented, are produced freely in October and November, but its value as an ornamental shrub consists in its handsome bright foliage and habit as just described. It is well worth a place in the most choice collection of shrubs.—J. E. Bodorgan.

Digging shrubberies.—The mild weather which we have experienced during the portion of the winter that is gone has enabled cultivators generally to have work in most departments well advanced, and those who annually dig their shrubberies will be taking advantage of the time on hand to give them extra attention. A "point over" gives them a clean and tidy appearance, but as regards the shrubs themselves, most of which are surface rooters, to dig among them means the destruction of many of their most important feeders. There are, however, circumstances in which it is necessary to keep growth in check, in order to keep the plants at the desired size; digging in such a case will be no disadvantage, but if growth and the best of health is the consideration there is no doubt that the less they are interfered with the better. *Rhododendrons* especially, and similar rooting plants, as well as *Conifers* generally, the value of which depends on their size, should never have their roots dug amongst, but a top-dressing of good soil would benefit them and freshen up the surface. We have a considerable area of shrubberies, and we dig among them as little as possible, but keep them clean and tidy by means of the hoe and rake. If weeds are not allowed to seed I find that the ground soon becomes easier kept than when annually dug, an operation which turns up fresh seeds every time it is performed.—A. MACKIE, *The Woodlands, Darlington*.

Bitton catalogue of trees.—Mr. Droop (p. 3) cannot have been aware or has forgotten that the garden at Bitton did not measure an acre of ground, and was the private garden of a vicarage; whereas Messrs. Loddiges' was a nursery ground of large extent, as was that of Messrs. Lee and Kennedy at Hammersmith, and Osborn at Fulham. Many of the trees and Roses at Bitton were supplied by Loddiges, and every tree and shrub there, excepting two ancient Yews, was planted by myself.—H. T. E.

SHORT NOTES—TREES & SHRUBS.

Willows for river banks.—Will someone be good enough to say which is the best sort of Willow to plant by the edge of a river to prevent the floods tearing away the banks? and which is the proper time to plant them?—MAC.

Single Kerria.—If "E. H. E." writes to Messrs. Rodger, McClelland & Co., of Newry, he may hear of the single *Kerria japonica*. They have also (in reply to another enquirer) a fair stock of *Saxifraga umbrosa* var.—T. S.

Waterside trees.—*'Sylvestris'* (p. 15) has omitted from his list of *Conifers* two of the best for waterside planting, viz., *Cryptomeria elegans* and *Retinospora pisifera*. These will grow almost in water; a thoroughly wet place is the only one in which the first-named is quite at home.—T. S.

POINSETTIAS AND ORCHIDS AT BIRDHILL.

Poinsettias.—Seeing reference frequently made of late to this brilliant winter bloomer, and the apparent difficulty some seem to experience in satisfactorily flowering it, I resolved to see Mr. Gough's collection here, which for many years past has lit up with intense colour his stove and conservatory about Christmas. They were, as usual, very fine, though their floral bracts, which averaged from 14 in. to 18 in. in diameter, cannot be said to be as large as the specimens sent from Lord Maclesfield's (p. 582), yet remembering that most people have to be pleased with less satisfactory results these were good. The double variety was not fully expanded, and here it is not so much appreciated as the single kind, nor is it so decorative. Some of the specimens were 10 ft. high, while others were grown coolly, especially *P. Veitchi*, which seems to be dwarfed and useful for special purposes. The following briefly is the system of culture adopted: When done flowering and matured they are cut down and removed to a cool vinery. The old stools are shaken out and carefully repotted if wanted. No bottom heat, except what the vinery affords during the summer, is used until they are removed to the stove for flowering purposes on the 1st of October. Progress from that time forward is immediate and effective, and the summer stored up strength is then fully exerted in making a grand display. This is the great point of difference between success and the failure that results from a constant unnecessary stove temperature and the general consequent absence of light and exposure caused by shading, which gives plenty of foliage and half-ripened growth, with unsatisfactory blooms. If there are yellow leaves, or any similar unhealthy symptoms, as pointed out by Mr. Henderson (p. 587), the drainage is possibly defective; but every grower can discern this at a glance.

Orchids.—I had intended a more extended reference to the very healthy collection of Orchids here, including the following, either blooming or preparing to do so: *Oncidium flexuosum majus*, *Laelia anceps Barkeri*, the lip very brilliantly coloured; the *Dendrobiums* were very promising, especially large specimens of *D. crassinode*, *D. nobile*, and *D. Wardianum*; *Masdevallia Veitchi* was particularly good. *Cattleyas*, of which *Trianae* seemed here the best, were also excellent. It would be hard to imagine anything more promising than the *Cecylogynes*, and the same seems true of *Vanda tricolor* and *V. teres*. A greater treat remained in the cooler house devoted to cool-house Orchids, especially *Odonoglossum*, in what seems a distinct type of *O. Alexandræ*; the flowers though pure white are not so large as the type, nor have they the special characteristics, while the margin of the lip is peculiarly crimped and frizzled. It was an imported kind, flowering now for the first time. W. J. M.

Clonmel.

Rhododendron Nobileanum.—Among early flowering hardy *Rhododendrons* none are more useful for early forcing than this. It needs indeed but little forcing to have it in flower after Christmas. But it does require some amount of artificial heat to induce it to open its flowers at that season. When grown constantly in pots the flower buds appear to get more forward than those on plants in the open. This will account for our plants readily responding to fire heat. So far as this season has gone, I find that all plants require less artificial heat than usual; but, taking an average of seasons, we have this *Rhododendron* in flower, if not at Christmas, very soon afterwards, and it furnishes a bright colour at a dull time of year. Our plants are in large pots, and make their growth in an unheated house in the spring before they are placed out of doors. Although thus favoured, they only flower well every other year. Like most other varieties of *Rhododendron*, after producing a heavy crop of flowers it requires a season's rest to recruit its strength; but by growing two sets of plants, some may be had with a full complement of flowers every year.—POMPADOUR.

SAWDUST FOR RAISING SEEDS.

ALTHOUGH we have heard much in praise of fresh sawdust for propagating purposes, I never could persuade myself to give it a trial, as it seemed to be just the sort of material that would breed fungi by handfuls when it got heated. I was therefore surprised the other day on looking through the propagating houses of a well-known cultivator to find dozens of pans filled with ordinary sawdust just as it had come from the saw-pits, and on many of them seedlings in various stages of development. On enquiring what advantage sawdust possessed over soil and sand, the exclamation was, "Why, bless you, we could not raise half the number of plants on any other material than sawdust; in fact, before we found this out we could not raise some of these things at all." The seeds were those of Bromeliads, Begonias, Gloxinias, &c., and many Orchids and Nepenthes. I was astonished when I saw how freely such things grew on what I had so strongly objected to, and which now I am, on the contrary, inclined to strongly recommend for raising all seeds that are small and difficult to manage. At all events, I am quite certain that Orchid-seeds, the raising of which is of growing importance, will germinate and grow freely in sawdust. The seeds were sown on the top of the sawdust, and over the pan about 1 in. from the top a square of glass was placed, the pans being filled quite full. The sawdust ought to be quite fresh, and if from green timber so much the better. B.

Fungus on Ivy leaves.—The beautifully kept Ivy on the castle here is becoming infested with both scale and fungus, large patches appearing quite black as if exposed to smoke. The fungus is in greatest quantity on the upper, and the scale on the under sides of the leaves. As the question is disputed whether or not the scale directly causes the fungus, I would feel grateful for reliable information as to that matter.—A. D. WEBSTER, *Penrhyn, North Wales*. [The name of the fungus so badly blackening and destroying the Ivy is *Capnodium footii*, so called from the appearance of the fungus to smoke or soot (*kapnos*, smoke, and *nodus*, a knot). Under a strong lens the fungus appears like a vast agglomeration of little sooty nodules. It chiefly grows upon and spreads amongst evergreens, as Laurels, &c., though it at times attacks deciduous trees and herbaceous plants. How can scale, an insect, directly cause the fungus?—F.]

Mealy bug on Vines.—Sir John Lubbock's observations on ants in the *Journal of the Linnean Society* for September, 1880, are very interesting, particularly to those who have the charge of vineries infested with mealy bug. The care the ants take of the eggs of aphides strengthens my opinion of the way in which they distribute the eggs of the bug. I have noticed when vineries are started, and the Vines have attained a few inches of growth, that the ants begin to be very busy with such bugs as have escaped the winter dressing of the Vines; they do not destroy them, but carry off the eggs—for what purpose I cannot say. My observations differ from those of Sir John Lubbock, who says they are taken late in the year, while I have noticed that they choose the early part. The easiest way to put an end to their work is to place a dead bird cut down the breast in their run, and occasionally drop it into hot water.—R. FRISBY, *Forest Heath, Lynnhurst*.

Will any kind reader of THE GARDEN tell "St. Bridgid" if the following mixture would be effectual and safe to paint Vines with infected with mealy bug? viz., one pint paraffin to one gallon of water, adding a quarter-pound of soft soap, and half-a-pound of washing soda. She has an iron conservatory 30 ft. long and 20 ft. high, up the pillars and over the arches of which ramble old Vines that are healthy and bear abundantly. Every winter she has applied various Vine dressings, which banish the bug for a time, but when the full summer heat beats on the house, then the pest reappears in thousands,

and at a time when nothing can be done to check it without injury to the fruit. The mealy bug also descends on the Pelargoniums and other plants which climb the wall. "St. Bridgid" hopes someone will rescue her from her troublesome visitant.—HILL OF HOWTH.

Soil for alpine plants.—Mr. Ewbank says that he finds Saxifraga Burseriana, and probably many others set down as needing lime, doing well in his garden without it. Let me ask, do none of his rocks contain lime? Few stones are free from lime, and if any are charged with it in Mr. Ewbank's case the evidence he adduces fails. Many rocks, too, even of a calcareous character are free from lime, the latter having been washed out of them by rain or running water. Such rocks would not be unsuitable for lime haters. I never ascertained the percentage of lime needed for limestone plants, but if not mixed with the soil they would die of hunger. The roots of plants suck up whatever is presented to them suitable or not, but they will always do best on what they like: of that I am quite assured, though there may be exceptions to the rule.—H. GUSMUS, *Villach Botanic Garden*.

Waterproof paper for packing.—A strong useful waterproof paper for this purpose may be made by giving a coat of a mixture of good copal varnish, boiled linseed oil, and turpentine in equal parts, to a strong white paper or old copies of any weekly journal that is printed on a good paper. I can recommend the *Spectator* or the *Saturday Review*. They are in convenient sizes just as they are, and a leaf or half-leaf is easily torn out for use. The mixture is painted on with a flat varnish brush $1\frac{1}{2}$ in. wide, and the sheets laid out to dry, or if the paper is stitched, it may be varnished leaf by leaf as it is, but then it must be laid open, one leaf after another, for a few minutes till the mixture has sunk and no longer shines on the surface. One copy of the *Spectator*, including advertisements, will absorb a small tea-cupful of the varnish, and will give thirty-two pieces of waterproof paper, counting half a leaf as the size used. Last autumn I sent home many parcels of plants by post from the Alps, and all arrived in good condition. A little damp Moss was tied round the roots, the waterproof paper round that, dry Moss round the upper part of the plants, and a wrapping of strong brown paper over all, a string across both ways, and a linen label tied on, with the notice *Echantillons sans valeur* above the address. A label to tie on should always be used for plants by post, unless they are enclosed in a box, that they may not be crushed by stamping. I enclose two samples of the paper; one has not been used, the other has just come from the island of Capri, near Naples, bringing in perfect order a dozen young plants of *Lithospermum rosmarinifolium* and other roots, packed as above described, at a cost of 35 centimes.—G. J. [The paper sent seems excellent for the purpose indicated.]

Waste in manuring.—"Cambrian" states (p. 14) that manure spread on the surface of the soil and exposed to drying winds, whether hot in summer or cold in winter, soon loses a quantity of its fertilising qualities. That this is an error has been proved before, but as the idea seems to linger in many quarters it is worth while to call attention to it again, as much mischief is done by it. For instance, one of the best employments for a frosty day is wheeling manure on to the land and spreading it in readiness to be dug in on the first favourable opportunity. Those who consider the manure spoilt by exposure must either waste time and trouble covering it, or do the work when the ground is soft and the paths out up by wheeling upon them. This subject was thoroughly argued thirteen years ago, when the controversy was referred to Dr. Voelker, who gave his opinion, based not on speculation, but actual experiment, "that farmyard manure spread on the land loses nothing by exposure to sun and wind." Of course, something may be said in favour of covering manure on the score of appearance, but this is beside the question.—CHAS. G. PEARSON, *Chilwell, Notts*.

A study of Chrysanthemums.—Mr. Burbidge is making a serious study of the Chrysanthemum. He would be greatly obliged to any one who will send him lists, catalogues, schedules, or other documents throwing any light on the history, culture, and exhibition of this flower. We are glad he is doing this, because the power of the plant to help us in winter and autumn decoration is great. Popular as it is, people do not know sufficiently the value of the late blooming Japanese and the other late kinds. Hitherto such plants as these "popular flowers," as they are called, have not been considered worthy of so much attention in our botanic gardens as flowers of less interest to the public; but there is no reason why it should be so; indeed, there is good reason why a man having exceptional opportunities should give full attention to make a flower already fairly well known better known still, points of culture and grouping of varieties having special value.

Special prizes.—Messrs. Hooper & Co., Covent Garden, offer special prizes to be competed for at South Kensington, as follows: On June 27, Laxton's Earliest of All Pea, the best dish of twenty-five pods, first prize, 31s. 6d.; second prize, 21s. On July 25, Hooper's Abundance Tomato, the heaviest fruits, first prize, 21s.; second prize, 10s. 6d.; the handsomest dish of nine fruits, first prize, 21s.; second prize, 10s. 6d. On October 10, Queen of the Valley Potato, the heaviest tuber, first prize, 21s.; second prize, 10s. 6d.; the best nine tubers, first prize, 15s.; second prize, 7s. 6d. Adirondack Potato, the best nine tubers, first prize, 15s.; second prize, 7s. 6d.

OBITUARY.

James Markey, the celebrated potter.

—On the evening of November 15, James Markey, who has gained a national reputation as an expert greenhouse workman, dropped dead of heart disease near his residence on Jersey City Heights. Though only thirty-four years of age, he had been employed in the greenhouses of Peter Henderson for nearly twenty-three years—having begun at the early age of eleven years. In all operations in the greenhouse Mr. Henderson has always claimed he had no peer for rapidity and neatness. In the operation of potting he daily did the work of two average men, and was paid accordingly. It will be remembered that some years ago when Mr. Henderson asserted that James Markey potted 7500 plants in ten hours, several of our readers questioned the fact. Long since then Mr. Markey had far surpassed even that extraordinary record, and had repeatedly potted 10,000 in one day of ten hours; and on one special occasion, in April of this year, potted 11,500 rooted cuttings of *Verbenas* in 24-in. pots, a feat probably never equalled or even approached. Besides being an extraordinary workman, few men of his years were possessed of such varied and comprehensive knowledge of greenhouse work. Mr. Markey was a native of County Meath, Ireland, but went to America at an early age, and, except two years which he served in the war of the Rebellion, had been from first to last in the employment of Mr. Henderson. He was modest and unassuming to a fault; a generous-hearted, open-handed fellow, and enjoyed the respect of his employer and fellow-workmen to an extent that few men ever attain.—*Gardener's Monthly*.

Names of plants.—J. E. W.—The seeds are those of the Quince (*Pyrus Cydonia*), used in India as a demulcent tonic, and common in the Indian bazaars.—A. B.—*Cymbidium sinense*.—Mrs. R. (*Hyde Park*).—*Begonia fuchsoides*.

Books.—M. E.—"Fems of the British Isles" (J. Van Voorst) will probably suit you.

A. C.—Try Messrs. E. G. Henderson, Pine-apple Place, Maida Vale, Edgware Road.

"Give a man the secure possession of a bleak rock and he will turn it into a garden; give him a nine years' lease of a garden and he will turn it into a desert. The magic of property turns sand into gold."—ARTHUR YOUNG.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

CARPETS FOR FERNS.

THE beauty of every fernery is much enhanced by having the larger kinds of Ferns growing out of some plant of dwarfer habit, and at the same time the Ferns themselves are much benefited thereby, because there is not the excessive evaporation constantly going on during dry and hot weather. The small Ferns are best without any carpet. They are the choicest, rarest and most difficult to grow, and as they require a little extra attention, it would be better not to run the risk of their being smothered. The following grow best on the perpendicular, and will scarcely admit of any carpet, unless it be the Mosses, which will soon establish themselves naturally: The Maiden-hair, all the Aspleniums, the hard Fern (Blechnum spicant), the Parsley Fern (Allosorus crispus), the Woodsias, and Hymenophyllums. As the most appropriate carpet for a fernery is a Fern, I place first on the list the

OAK FERN (Polypodium dryopteris). It suits the tall Lastres, Polystichums, Athyriums, Osmundas, Onoclea sensibilis, and Struthiopteris germanica, &c. Now is a good time to plant it, as it is at rest. Remove 1 in. of soil, spread the branching underground stems on the surface, peg them down a little, or, better still, fix them with a few pieces of gritty sandstone or broken brick, and then cover with leaf-mould and peat. It will spread rapidly, and cannot fail to please during spring, summer, and autumn.

SELAGINELLA DENTICULATA.—If I were compelled to adhere to one carpet only this would be my choice, being well adapted to a moist fernery, and rooting as it runs over the surface. There is an element of tenderness in its constitution, and a severe winter will clear off great patches of it, but some is sure to remain to replace quickly that which was lost. It is a very shallow rooting plant, and looks especially fresh and green during the moist atmosphere of autumn and winter. It loves shade; sunshine soon shrivels it up. I once tried it as a carpet to the blue African Lily (Agapanthus umbellatus) in a warm border well exposed to the sun. Result, complete failure. I am sure it would be worth the trouble of keeping a stock of it in cold frames during winter, and planting it out among the Ferns in spring. It will suit Ferns of large or medium size. Scolopendrium looks very well in it.

THE WOOD ANEMONE (Anemone nemorosa).—A glorious carpet in spring when the deciduous Ferns are at rest. This is one of the most beautiful of our native-wild flowers, and those who have seen acres and acres of it in full bloom, as we have it about here, will never forget the charm it adds to woodland scenery. Leaf and flower are alike ornamental. It is easily propagated, for the least scrap of the thick fleshy stems, popularly called roots, will grow. It planted itself here by being carried in among leaf-mould from a neighbouring wood. It loves shady places.

SAXIFRAGA SARMENTOSA.—The creeping Saxifrage, or our old friend the "Wandering Jew." Well adapted for shady places, where the leaves assume a dark green colour, and the markings become more strongly defined than in full exposure to light. It answers well in rough ferneries where there is plenty of the perpendicular over which it can droop, and in the crevices of which it can root itself. Perfectly hardy. Habit,

that of the Strawberry. I planted it out many years ago, and it has taken care of itself ever since.

The foregoing have been my groundwork for Ferns for many years past. There are many other plants which would answer equally well. I am sure Campanula hederacea would do (p. 34). I have no experience of the Arenarias as shade-loving plants. Have any readers of THE GARDEN tried Campanula cæspitosa or any of the mossy Saxifrages? EDWIN JACKSON.

Llandegai, Bangor.

LIFE HISTORY OF A CROCUS.

At the Linnean Society the other evening Mr. George Maw read a communication on this subject and the geographical distribution of the genus. Mr. Maw states that every living part of a Crocus is annually reproduced, and that in one sense there is no continuity of life within each organ. The corm-tunic is the only permanent record of perennial existence, and even this in the living state lasts but a year. Scattered indiscriminately over the corm surface are minute papillæ (incipient bulbs), on whose ultimate growth the future cycle of life depends. The abundance of roots is directly related to the floriferous character of each species. The new corm is, as it were, planted into the substance of its parent, which it absorbs. The tunics are homologous with the leaves, and their fibrous reticulations resemble the latter, only, as it were, expanded laterally or with wider meshes. Moreover, their ornamental patterns are so varied, yet withal so well marked, that a fragment is often sufficient to determine a species. The leaves of the majority appear with the flower, but in a few autumnal species they remain dormant till the ensuing spring. There appears to be two distinct sets of colour cells in the segments of the perianth, the inner never exactly corresponding with the outer. A few species are essentially various in their colouring; others are perfectly constant; and still others—for example, Crocus cancellatus—change gradually in tint from east to west—namely, purple in Asia Minor, lilac in Greece, and white in the Ionian Islands. There are also cases of mimetic variation. The pollen grains, though chiefly spherical, possess special specific characters, colour, size, and ornamentation distinguishing them. The stigmata are so wonderfully diverse that Mr. Maw cannot adopt Mr. Baker's threefold classification based thereon, though he admits their characters are invaluable in the determination of species. The seed of the vernal species is matured about midsummer, and that of the autumnal species in November, the vegetation of the former being delayed till the spring. Contemporaneously with the maturity of the seed, the foliage and the roots attached to the last year's old corm die away, and the life cycle is completed with the new corm in the condition of rest.

Crocuses, geographically speaking, are confined to the Old World and the Northern Hemisphere, their chief area of distribution being around the Mediterranean and Black Seas, where they form comparatively an important feature in the flora. Mr. Maw divides their region of occupation into nine somewhat arbitrary sub-districts, viz., 1, West Europe; 2, N. Africa; 3, Swiss and French Alps; 4, Italy; 5, East Europe; 6, Asia Minor; 7, Caspian; 8, Syria and Palestine; 9, Central Asia. C. biflorus has the widest range, extending for 35°—from Italy into Georgia. C. sativus in its various forms follows, ranging through 30° of longitude, i.e., from Italy to Kurdistan. The islands of the Mediterranean offer curious examples of limited distribution. C. Cambessedesii is found

but in the Balearic Isles, and C. cypricus and venericus in Cyprus and Crete. Mr. Maw's observations go to show there are no wild hybrid Crocuses, and he points out that there is a great tendency to morphosis of nearly every part of the plant. The Crocuses are of exceptional interest both to botanists and horticulturists. Mr. Maw's article on the genus, kindly written for us, appears elsewhere this week.

THE FLOWER GARDEN.

OLD STAGE POLYANTHUSES.

It is quite refreshing to old florists to see these grand old flowers coming slowly to the front again. I say slowly, for few not in the secret have any idea of the trouble and patience required to get the few remnants of the past gathered together. The greatest difficulty now experienced is to find old growers capable of giving an opinion of these. I fear I can count all on the tips of my fingers and have a few to spare. Growers of the present day under the age of three-score I look upon as apprentices, and should hesitate to take their word as regards the correctness of names. It is only by getting the opinion of cultivators at some of the few meetings at which these flowers are exhibited that correctness can be attained. I think the following list contains nearly all the old kinds; some are lost, and I am doubtful as to some being true. Should any I have omitted be yet in cultivation, I shall be glad to hear of them if authentic, the names of the raisers being given with them: Alexander (Pearson), a grand old variety; Bang Europe (Nicholson), an old variety, doubtful if existing; Beauty of England (Maud), lost—the variety sold for this is not it; Cheshire Favourite (Saunders), fine dark variety; Black Prince (Paikner), a comparatively modern flower, with very dark ground and dark gold lacing; Bonny Bess, a modern dark flower, of no value; Conington Queen; Defiance (Fletcher), a good old variety; Eclipse (Crownshaw), a good variety; Exile (Crownshaw), deep black ground, richly laced, perhaps the most exquisitely chased flower grown; Formosa (Barnard), an old variety of extra fine form, richly laced; George the Fourth (Bucks), fine red ground, extra quality, scarce; George the Fourth (Waterhouse), a good old flower, if in cultivation; George the Fourth (Benson), a modern flower, of little account; Invincible (Crownshaw), a grand variety, now lost; Jolly Dragon (Eckersley); King (Nicholson); Kingfisher (Addis), red ground, elaborately laced, the finest flower ever raised, now lost; Lancer (Bullock), the finest red ground existing; Lancashire Hero (Whitaker), a modern variety and a good flower; Lord John Russell, lost; Lord Crew (Clegg), good old sort, if existing; Lord Nelson (Park), a good old sort, if existing; Lord Lincoln (Cox), a fine, delicate variety; Napoleon the Third, a modern flower, only second-rate; Prince Regent (Cox), a good old variety; Pittshead (Collins), a fine variety, if existing; President (Helton), red ground, good lacing and truss; Rilshead, an old variety; William the Fourth, a recent, inferior flower; Duke of Wellington (Smith), a modern flower of strong growth, much lauded by southern growers, not equal to some of the old flowers, and not up to the northern standard. Among the lost varieties I may name Kingfisher, the grandest variety ever raised; the last I saw of it was shown by Harris, of Sheffield, nearly fifty years back, and I once heard of its being at Bradford, Yorkshire, some years later. Beauty of England is gone; in the variety now sold for it have no faith. Invincible and Lord John Russell are gone, never, I fear, to be seen again. Perhaps among modern or more recent flowers Lancashire Hero is one of the best; Duke of Wellington (Smith) does not come up to the old standard, at least with me it is rather coarse; and William the Fourth, from near the Tyne, is of no use. I am happy to say there are several steady hands now at work raising seedlings, and it is to be hoped their labours will be crowned with success. EXILE.

Lychnis alpina.—I think Mr. Moir's note (p. 40) may be taken as settling one point I raised, viz., that we have in Britain two varieties of *Lychnis alpina*, and further than this I think we may now take it as provisionally settled that the Scotch variety is similar to the Lapland one (*L. lapponica*). Observers during the coming summer will probably decide the point finally. Mr. David Dow states in the "Transactions of the Wernerian Society" (Edinburgh, 1820) that the plant had been found in the locality given by Mr. Moir by his father (Mr. G. Dow, of Forfar), and he gave as synonyms, "*Silene lapponica alpina*, *faciæ viscaria*, *f. lapponica*, No. 185." Mr. Wilson Robinson also writes me that he has in his note-book a memorandum of a conversation he had with Mr. James Backhouse in 1867, when he said that "there were on the Continent two forms of the *Lychnis alpina*, and that the Clova (Scotch) plant is one and the Cumberland plant the other, but that he had raised one of them from seed, so I suppose he could not be quite certain if the specimen he was then referring to represented the wild sort. I am not prepared to say that there is any real difference between these two varieties, but it is a curious little point worthy of the careful attention of our alpine botanists, and I hope it will be cleared up accordingly."—BROCKHURST, *Didsbury*.

Soil for alpine.—It may seem presumptuous to differ from Herr H. Gusmus, but I can only record facts as I find them here. I said in my note to THE GARDEN that *Edraianthus dalmaticus* does not grow upon a rockery at all, and the same thing applies to *Saxifraga Bursieriana* and *Gentiana pumila*. There are no rocks near them of any kind. I planted them in a comparatively hazardous way in a bed that was made for the reception of Cape bulbs and *Ixias*, *Babianas*, *Sparaxis*, *Tritomas*, &c., flourish there abundantly. The soil was brought into my garden, and is entirely composed of the top spit of a neighbouring meadow, with sand in it to keep it open. In the winter I give it a dressing of 2 in. of manure to protect the Cape bulbs from frost. It is in this bed that several alpine plants have done remarkably well for a long time. *Saxifraga Bursieriana* is at this present moment covered with buds, and will be a sheet of bloom in a day or two. If this were a matter of any great importance I would gladly send a blossom to Herr H. Gusmus to inspect, and some of the soil to analyse.—HENRY EWBANK, *St. John's, Ryde*.

NOTES—FLOWER.

Marguerites.—H. H.—Your Marguerites have been attacked by the grub of a small fly nearly allied to that which often attacks the leaves of Celery. They have now turned into chrysalides within the leaves, and may easily be seen by holding the latter up to the light. Burn the affected leaves, and next season at once pinch the leaves where they show any signs of being attacked, and crush the maggots.—G. S. S.

Seeding Auriculas.—I am much obliged to Messrs. Horner & Jackson for their kindness in advising me what to do with my Auriculas, and shall follow their advice forthwith. My plants are so fine that I think I can safely plant out even the smallest of them without any fear of its being carried off by a worm, unless it is a Chang amongst its kind.—ENQUIRE.

Canna iridiflora Ehemanni.—Mr. Green informs us that this plant, marked under our woodcut (p. 32) as growing 5 ft. high, really grows 10 ft. high. We know from our own experience that it does, because a single shoot sent here from Pendell Court was 10 ft. high; but it flowers at various heights, and the one from which our woodcut was sketched was described by the artist as of the height we mentioned.

Campanula persicifolia alba f. pl.—Last April I planted out on an east border a few dozens of very small plants of the Harbell. In October they were showing strong flower-stems. I had a few of them taken up and potted in 6-in. pots, and each plant has at this time from three to nine strong flower-stems, 2 ft. high, with plenty of bloom just opening. Though quite hardy, it will make a grand plant for greenhouse decoration.—RICHARD NISBET.

EDITOR'S TABLE.

DOUBLE PRIMROSES FROM WALES.—The fogs in London this week have been about at their dimmallest. Above them the sun is shining clearly, but that does not help us much. Our table, therefore, is at its worst, so far as we remember, for the last nine months; but some double yellow and lilac Primroses from Llandegai are so fresh and so good that they mitigate the horrors of the smoke for several seconds. By the way, Wales seems a charming country for all such plants, and we hope that the natives will take seriously to them.

GREVILLEA ROSMARINIFOLIA.—Mr. Stanbury sends us from the gardens at Appley Towers, in the Isle of Wight, fresh and many-flowered specimens of this curious evergreen Australian shrub, which thrives perfectly in that island. It would be interesting to find out how many Australian bushes and trees would thrive and flower in that favoured spot where the *Camellia* is full of blossoms in the open shrubbery.

DESFONTAINEA SPINOSA.—This beautiful shrub also comes from Appley Towers. Although it survives in many mild parts of our country, it has seldom seemed to us to be really in good health. We should like to see so noble a bush in its best state, as it is so wholly distinct from anything we have—a Holly bush, as it were, with the flowers of a handsome *Genesra*.

FUCHSIA MICROPHYLLA.—It is surprising how well this delicate and graceful little *Fuchsia* goes on in the winter. Mr. Jackson sends us from his garden near Bangor a spray that is full of flower and very fresh in leaf. It seems a plant of singular value for seashore districts, and not only for these, because Mr. Groom has lately sent it to us in good condition from Kent.

ERICA CARNEA.—This constantly good and hardy plant comes full of fresh blossoms from Mr. Edwin Jackson, from Wales, where, as in many other places, even towards the fringes of our great "Smokeopolis," this little mountain Heath thrives and cheers the spring. With it he sends the scarcely less desirable dwarf Mediterranean Heath, both being plants of the greatest value in spring and rock gardens, and to gardens generally.

DAPHNE FIONIANA.—Mr. Edwin Jackson sends this, with its glossy dark leaves and pale rose flowers, praising it very highly for its sturdy dwarf habit and constant verdure. He says it is excellent for its effect near light or golden-leaved plants. Groups of the various dwarf *Daphnes* are admirable for the rock garden or beds of little shrubs.

AUBRIETIAS.—One is glad to see specimens of these again; they are so hardy, so early, and so easily grown that no one can make a mistake in selecting them as among the best of all rock and alpine plants. They grow just as well on an old wall or dry bank as on the level ground, and on the level ground as well as, or better, than on the most carefully made rock garden. And yet they are true mountain plants, and, with many others, throw some light on the care that is now being taken by various persons to make the cultivation of alpine flowers a little more difficult than it need be. We remember some places in the Wye valley where they hung down the walls of the cottage gardens, and we wish that more pains were taken generally to put in positions where they could take

care of themselves, and be no trouble to the gardener such faithful blossoming little hardy mountaineers.

A BEAUTIFUL WHITE CINERARIA.—Mr. Bradbrook, of Ketteringham Park Gardens, in Norfolk, sends us some beautiful trusses of a large creamy-white *Cineraria*, which goes some way to realise our wish as to having distinct races of these beautiful plants. With such gardeners could produce distinct and better effects than they now do with the usual variegated mixed collections. MM. Vilmorin, of Paris, have gone some way to effect improvement in this direction, and have so well fixed some colours that they come true from seed. We hope that further experiments in the same direction are being made.

LINUM ARBOREUM.—This little plant comes in flower from Llandegai, and though its blossoms are not large and it is not naturally a winter bloomer, they remind us of its value. Raised on any kind of border, on the top of a sunk fence, or on the rock garden, it forms a neat evergreen bush, and is not troublesome to grow or keep, getting literally covered with flowers in the early summer. Sometimes a very severe winter may cut it down, but not in all districts, and it is worth having in all—not, however, as a starved, ill-grown specimen in a pot or anywhere else. This is sometimes mis-called *Linum flavum*.

ORCHIDS.

"PEREGRINE'S" CRITICISM.

THE remarks and criticisms of "Peregrine" are generally to the point. Now and then, however, he gets off the rails. The very essence of all that is respectable in criticism is absolute truth in quotation; but faith in "Peregrine" becomes shaken when he twists a plain statement of facts, and reverses the direct meaning of it so as to suit his own views. As an illustration of this I subjoin what "F. W. B." really wrote in the *Gardener* and also append "Peregrine's" version of it in THE GARDEN of last Saturday.

"F. W. B." in *Gardener*, 1882, p. 51.
1882, p. 8. "In a paper just to hand I see 'F. W. B.' states that some time ago well-directed efforts were being made to exterminate the *Odontoglossum Alexandrine* in South America by certain nurserymen, in order to create a monopoly. It is not creditable to the trade, if this be true, but the extent of the purchases and importations lately by some firms countenance this idea."

"Peregrine's" suggestion that the seeds of *Odontoglossum Alexandrine* should be collected abroad and a stock of plants raised from them here is startling. "The thing has never been suggested, so far as I am aware, before; but it ought to be practicable," says "Peregrine." To be sure, it "ought to be practicable," my dear "Peregrine;" but what is likely to happen while we are waiting? All "art is long, and life far too fleeting;" but the idea of raising any one species of Orchid from seed while thousands of full-grown flowering plants of it can be bought at Stevens' rooms for a tithe of what such stock (as raised from imported seed) would cost the raiser is a notion one would not expect to hear, even from "Peregrine." Apart from the cost and labour involved, Orchid growers would need nine lives instead of the two which Mr. John Dominy modestly suggested all gardeners should have.

P. T. O.

Cypripedium Maulei or Chantini.—In answer to "F. W. B.'s" enquiry regarding this *Cypripedium* and its companion *C. Chantini*, allow

me to say that the plants we grow here under these names are quite distinct. The one we call *C. Chantini* we got from a friend who had it sent him from France some years ago. The one we grow as *C. Maulei* has by far the most white on its dorsal sepal; next come the one we call *C. Chantini*, and then the old form of *C. insigne*, which is only slightly tipped with white. I notice *C. Chantini* in several foreign catalogues under the head of *C. insigne* *Chantini*. Mr. Williams has it in his *Orchid list*, and possibly some of those growers who offer it for sale may give their opinion regarding it. The foliage of the so-called *C. Chantini* with us is of a paler green than that of either *C. Maulei* or *C. insigne*, and, let it be what it may, we at least have here three distinct forms of *C. insigne*.—W. THOMSON, Jun., *Clovenfords*.

Dividing *Cypripedium insigne*.—The best time to divide and repot *Cypripedium insigne* is immediately after flowering, as then the plants may be shaken out without sustaining much check; whereas if left later they will have commenced their young growth, and the roots will also be on the move, and it is almost impossible to disturb them after that without injury to the one or the other, as both are then in a tender condition. In making the division the proper way is to pull them apart after unravelling the roots, all of which should be handled with care and preserved. When repotting it is necessary to have plenty of drainage, and to use the peat in a rough state with plenty of fibre in it, and if a little chopped sphagnum and small lumps of charcoal be mixed with it all the better, as this helps to keep it more open and porous. Some like to have loam with the peat, and if tough and fibry the plants do well with it, as then it does not become close and inert. The resting season for *Cypripedium insigne* is July and August, after which they begin to send up their flowers then formed in the heart of all the young growths. *Cypripedium insigne* does not require anything like the heat requisite for most of the others, and often does well in a frame or warm greenhouse orinery if not kept too hot at the roots.—S. D.

NOTES—ORCHIDS.

***Odontoglossum cirrhosum*.**—The question is asked in *THE GARDEN* (p. 540) as to whether *O. cirrhosum* or *O. crispum* is the best. I prefer *O. cirrhosum*, which we grow much freer than *O. crispum*.—J. TAPLIN, *Maywood, New Jersey*.

***Maxillaria Lohmanni*.**—I have a variety of *Maxillaria* under this name, which I consider a first-class winter bloomer, the flowers being superior to those of many of the sorts of *Lycaste Skinneri*, and the plant in this country is much freer in growth. The flowers are very handsome, and last several weeks in perfection. Its growth resembles that of a strong *Trichopilia*.—J. TAPLIN, *Maywood, New Jersey*.

***Odontoglossum Alexandræ* from imported seed.**—Is not "Peregrine" a little beside the mark in recommending this idea in *THE GARDEN* (p. 51), seeing that Nature can do the thing for us so much better, quicker, and cheaper than we could hope to do it under artificial home conditions for ourselves? One might almost as well try to make our own coal, or to attempt the artificial breeding and rearing of sea fishes, as to practise his idea, much as he prides himself on its originality.—PEREGRINE.E.

Rose fences.—I wish to conceal a manure heap and woodstack which is near the approach to my house. Fruit tree espaliers would be hardly high or thick enough, and Arbor-vitæ or other evergreens too formal. I see Rose growers advertising the old Monthly Rose and other sorts for Rose hedges. I should like to know how these are best supported; or how a hedge of Sweet Brier and Honeysuckle, or some mixture of them, with Roses or some kind of evergreen could be best arranged. Will some one who has experience in such things let us know how they have succeeded?—W. S. T.

We regret that, owing to pressure on our space, many interesting communications are omitted this week.

THE INDOOR GARDEN.

STRIKING CAMELLIAS AND AZALEAS.

THESE may both be struck from cuttings, although it is a mode of propagation seldom employed, as their rate of progress is at first slow compared with that of grafted specimens. In the case of Azaleas, cuttings taken from plants that have been forced strike with the greatest readiness, and for this purpose should be selected when the young growth is about half ripened. They may either be put in a close case or under bell-glasses; if the former, $\frac{1}{4}$ inch pots are a useful size; if the latter, take of course pots to suit the glasses. The pots must be clean and filled to within 2 inches of the top with broken crocks, rough at the bottom and fine towards the top; then fill up nearly to the level of the rim with sandy peat, sifted fine and pressed down firmly; finally put a layer of silver sand on the top, bringing it up to the level. The best time to take the cuttings is just as the young growth commences to get woody; if taken too succulent they damp off, and if delayed too long the emission of roots is a slow process. From 3 in. to 4 in. is a very suitable length for the cutting, and of this 1 inch at the base must have the leaves removed for the purposes of insertion. Put them in firmly and not too thickly; this done, place them in a temperature of from 60° to 70°, in which they will soon root. When first watered, and indeed whenever that operation is performed leave off the glasses for a little time to allow the foliage to dry, but not long enough to cause the cuttings to flag. If the cuttings are taken from plants that have not been forced, the same process must be followed, but of course it will be later in the season before they are ready. If placed in a dry heat they become infested with thrips, which will greatly retard the rooting. For Camellias prepare the pots as for Azaleas, but let the soil consist of equal parts of peat, loam, and sand, and make the cuttings also of the half ripened wood, with, if possible, a slight heel of harder growth. When put in, which will be towards the end of the summer, they may be placed in a close frame, in which they will callus, and when removed into a little heat will soon root. I have often struck them by putting them at once in the temperature of an intermediate house, but so treated careful attention is necessary.

R. P.

Poinsettias.—When I resided in England I had *P. pulcherrima* with crests 22 in. across, a size which I have never been able to exceed. I have had the double variety 19 in. across, and quite full in the centre this season; therefore, there is no doubt that it will maintain its character, though, as one of your correspondents notes, it flowers later than the single one. I may add that the so-called major variety flowers earlier than the other, and is of a different colour. I had this variety in flower early in November, but what reason it is called major I cannot understand, as it is considerably smaller than the common kind, although I have had from twelve to fifteen heads of bloom on one stem. As regards the so-called white variety, it is not worth growing, as it is not white, and the bracts are always small. We grow all our Poinsettias in the open air during summer, and only bring them in when frost is expected in autumn. For cutting purposes the easiest plan is to grow them planted out in a house, the temperature of which ranges from 50° to 60°. Our plants this season were brought in on October 3, later than usual, and only one day before a sharp frost. Now (January 11) after all the flowers are cut they are furnished with green leaves right to the ground.—J. TAPLIN, *Maywood, New Jersey*.

Economy in heating.—This is a subject which crops up annually, and we usually find that some manufacturer has a boiler that consumes less coal than any of its predecessors. This may or may not be the case—usually the latter. But when it comes to a discussion concerning the heating of a

series of houses, some hot and some cold, with a large and a small boiler, it is a different question. I hold it poor economy to use small boilers at any time, or to use a large and a small boiler to heat some hot and some cold houses, for the simple reason that there is more coal muddled away in starting a separate small boiler for cool houses than in having one large one. I consider when it is possible to heat cool houses from the same boiler that heats warm ones it is the best economy, a fact which English gardeners would appreciate if they lived in a climate where the temperature falls 30° in twelve hours, and in some cases 20° in half an hour. If your correspondent will give it a trial he will find that one large boiler will consume less than two smaller ones for the same length of pipe. The main thing is to see in fixing the boiler that the heat does not escape into the chimney. I use large boilers, but they are so arranged that the iron smoke-pipe on the top of the boiler is cooler than the water pipes 200 feet away.—J. TAPLIN, *Maywood, New Jersey*.

Violets not flowering.—It is impossible to say what is the cause of "J. S.'s" Violets (p. 38) refusing to flower without seeing the position they occupy and having some idea of the way in which they were grown last season. I never remember a more favourable season than this for Violets flowering indoors. From two large pits we have gathered bunches every week during the past winter, and single blooms from the open air. They are now quite covered with buds and flowers. We plant strong side shoots in April 1 ft. apart on rich, partially shaded soil. Keep all runners cut close off, the soil moist, and the tops clean by copious washings. We lift them with good balls of earth, and plant them in frames well elevated at the back to catch all sunshine. We ventilate freely on all favourable occasions and cover securely from frost, keeping the surface soil clean by stirring. The flowers take longer to open in the dark days than when there is more light, but I have never known Violets fail to bloom if treated as just described.—J. GROOM.

"L. S." is not alone in having Violets that refuse to flower, as ours and others which I have seen are in the same condition. This I am not surprised at as regards our own, as last summer (although those we have were planted on a north-west border and kept well watered, and damped overhead frequently, which is our usual practice during the summer) they became so infested with red spider as to cause the leaves to receive serious injury. This naturally had a weakening effect on the plants, and prevented them from forming plump crowns, and as they have not these they are quite unable to bloom. Not only were the frame kinds affected in the way described, but the *Czar* and others growing in different parts of the garden suffered to a greater extent, and many of them are now without foliage. It will be remembered that we had a fortnight or so of excessive heat in June, and the atmosphere being very arid at the time, the plants became infested with spider, and the pest, as is usual under such circumstances, spread at a rapid rate, and the great heat seemed to dry the damaged leaves up. We dressed them with soot and sulphur, but it seemed to aggravate the evil, and yet we washed it off before the sun got round on the plants. I hope to start afresh with clean young runners, and shall plant in another part altogether, in case any of the insects may be lurking in the soil of the border where the Violets last stood. It is to be feared that these favourite, sweet-scented flowers will be scarce in the markets this year, and those who have clean healthy stock will have reason to congratulate themselves, as plantations in that condition are not very common.—S. D.

Caeti in and out of doors.—Personally, I am much obliged to Mr. Loder for the goodly list of *Caeti*, &c. (p. 28), with which he has experienced. I was not aware that so many species would endure such low temperatures as those given, and it is to be hoped that some may be induced to plant them, or, at any rate, a few of them. Clearly, excessive moisture is their greatest enemy, and it must prove

a difficult one to combat in this climate; still, it is not hard to see how a small piece of rockwork could be so constructed as to afford the necessary shelter for a good number. As Mr. Loder has kindly promised to give us the results of his batch of fifty species planted last June, I, for one, hope to be benefited by them; though we have not had much frost yet, there may be more to come, and certainly there have been fogs and rain enough to form a sufficient test as respects moisture.—J. WOOD, *Kirkstall*.

NOTES—INDOOR.

Lily of the Valley.—I saw Lily of the Valley as fine as that pictured in *THE GARDEN*, December 10, the first week in November in the stove of a wholesale dealer in New York, and it has been fully as fine all through the season.—J. TAPLIN, *Maywood, New Jersey*.

Pteris scaberula.—I do not consider this a small Fern; I grew it 5 ft. in diameter in one year. The only trouble is keeping it cool enough, as it is subject to thrips. I do not consider it good for cutting, as it wilts too fast—at least that is our experience in this country. I should consider it one of the best Ferns for a cold fernery—one in which no heat is required. The foliage dries off, and is replaced by a fresh crop the next season.—J. TAPLIN, *Maywood, New Jersey*.

Ouvirandra fenestralis.—In the account of this aquatic in Sir T. Lawrence's collection the leaves are, I think, said to be 1 ft. in length and 5 in. wide in the broadest part. Does the length include petiole? or is the blade of the leaf only measured? I ask this question because the mode of measurement has been disputed. Our largest leaf-blade is 11 in. by 5 in., and the leaf-stalk 5 in. Our plant is merely a small one in a 5-in. pot, and is grown in a milk-bowl or pan, without any special arrangement for keeping the water in motion, and the temperature is very erratic; dense shade I think all essential.—ANONYMA.

NOTES OF THE WEEK.

VIOLET DISEASE IN FRANCE.—The French papers state that in the valley of the Rhône Violets are suffering from a new disease. A very slight spot is at first noticed on the blue of the petals as soon as they open, and increases rapidly. The flower fades and dies. It is believed that the disease is due to a very minute insect which attacks all varieties alike.

MONOCHETUM LEMOINIANUM.—Although not so showy as some *Melastomads*, in free flowering properties this is equal to any of them. Its habit is dense and compact. It succeeds well under ordinary greenhouse treatment, and bears at the ends of the branches flowers about 2 in. in diameter, of a deep violet-rose colour. It is now in blossom in a cool compartment of the T range at Kew.

SPRING BITTER VETCH (*Orobis vernus*).—Some clumps of this forced into flower are now pretty objects in No. 4 greenhouse at Kew, the fresh green spring-like foliage serving as an appropriate setting to its variously coloured blossoms—noticeable from the way in which the different shades of blue and purple are therein blended. These flowers supply a colour of which the great mass of forced plants are deficient.

CHEVALIERIA VEITCHI.—This Bromeliad—pretty from a foliage point of view alone—has gracefully recurved leaves, from the centre of which the flower-spike is produced; this reaches a height of about 18 in., and is crowned by a cone-shaped head of bright crimson bracts, from which the flowers slightly protrude, but being of a whitish hue they are in no way conspicuous. This plant, which is also known under the name of *Aechmea Veitchi*, is now in flower at Kew.

THE CUT-LEAVED BRAMBLE.—The beautiful Blackberry depicted on the opposite page was sent us by Mr. Carter, of Keighley, last September. He wrote at the time: "Two years ago I had an old wall planted with these Blackberries,

and they are now loaded with fruit. Mixed with Apples, they make good tarts or jam. They are pretty objects either trained against a wall, round three or four tall stakes, a dead stump, or a trellis. I could pick scores of bunches similar to those sent."

CHINESE PRIMULAS AT ARDGOWAN.—These are very good this year, and at present make a fine display. Noticeable amongst them is the *Marchioness of Exeter*, a double white variety with large handsome flowers. Some of the single ones, too, are remarkable for the size and richness of their bloom. *Chiswick Red* is the most attractive amongst the coloured varieties. It is bright red, and contrasts well with the white sorts.—W. L.

HELLEBORES.—These are at present almost the only occupants in flower in our outdoor garden, and certainly during the long winter months they may be said to therein hold undisputed sway. At Kew there are in flower, among others, *Helleborus orientalis*, *olympicus*, *purpureus*, *colchicus*, and *abchasicus*, but many of them are not yet fully expanded, while that ever popular favourite, the Christmas Rose (*H. niger*) and its variety major, are now past their best.

ARUM PROBOSCIDEUM.—A large mass of this singular little Aroid is now in flower in the T range at Kew. The foliage reaches a height of about 6 in., while the flower-stems are very short, being only just sufficient to raise the blooms above the surface of the soil. The principal feature of this plant is the peculiar elongation of the spathe, which terminates in a thin curved filament of a greater length than the rest of the flower. The inflorescence of this is in no ways showy, the base being greenish white and the upper part greyish brown; but the curious shaped spathe is interesting.

SHRUBS IN FLOWER AT RYDE.—We have a plant of *Grevillea rosmarinifolia* here about 3½ ft. high and 5 ft. across, in an open border, covered with flowers and buds; it has been planted out about eight years, and has withstood the severe weather of the three previous winters without protection, and we have also in flower that beautiful shrub *Desfontainia spinosa*—indeed it has been in bloom for these last two months, its red and yellow tubular flowers being very beautiful. It was planted out about seven or eight years ago, and has had no protection. It is now about 4 ft. through.—WM. STANBURY, *Appley Towers, Ryde, Isle of Wight*.

HARDY FLOWERS AT BRISTOL.—We have here (Henbury Hill) the following hardy flowers in bloom, viz., *Pansies*, *Aubrietia purpurea*, *Lithospermum frutescens*, *Alyssum saxatile*, *Violets* (the *Czar* and *Marie Louise*), *Snowdrops*, *Hepaticas*, *Gentiana acaulis*, *Monthly Roses*, *Wallflowers*, *East Lothian Stocks*, *Polyanthuses*, *Primroses* (common and coloured); *Arabis alba*, *Helleborus niger* and *fetidus*, *Mignonette*, *Schizostylis*, *Myosotis dissiflora*, and *Iberis gibbata*, *raltaria hybrida*; also the following shrubs: *Chimonanthus fragrans*, *Kalmia latifolia*, *Jasminum nudiflorum*, and, lastly, the *Laurustinus*, the latter a perfect cloud of flower, and it has been in that condition for quite a month.—A. W. HANCOCK.

ORITHYIA DASYSTEMON.—This exceedingly pretty little spring-flowering bulb (received from the New Plant and Bulb Company, at Colchester) is now nicely in bloom in a pot on the front shelf of my conservatory. Each bulb only produces a single flower, which closely resembles that of a small, bright golden Tulip. The flower bud just rises above the barely half-developed foliage, and requires a sunny day to expand it, but once open it does not close when the sun

goes in, but remains open till the petals fall. The back of the petals is veined with a greenish, bronzy-streaking, something resembling that on the Cloth of Gold Crocus. I should be glad if any of your readers could put me in the way of acquiring a bulb of the larger-flowered form of this plant, figured in second volume of Sweet's "Flower Garden" under the name of *Orithyia uniflora*, a name, however, that would be equally applicable to my little plant.—W. E. G.

FLOWERS FROM WALES.—I send some flowers that you may see what we have done here. The whole season is awry. The *Snowflake* enclosed is *L. gestivum*. *Linum arboreum* is in full bloom, but owing to want of sun, has not expanded its flowers. *Fuchsia microphylla* looks better now than previously, its foliage being so finely dark green. The *Thrifts* have never been out of flower. *Andromeda floribunda* aptly illustrates its name at present. The large white Christmas Roses are over, but the purple forms are still blooming. *Daphne neapolitana* (*Fioniana*) is a fine dwarf, dark-leaved shrub, and affords a good contrast in foliage to any of a light green or golden hue. Among many good things on rockwork I place among the foremost the two *Ericas*, *carnea* and *mediterranea* *nana*, the two first to flower of the many varieties I have. Can any information be obtained as to the origin of the *Galigaskins Primrose*? For many years I have had a red one, which was supposed to be old when given to me. Last season two other varieties, *primrose* and *white*, made their appearance, self-sown. I enclose two coloured specimens of the *primrose* one. Double *Primroses* are fairly in bloom, but nothing to what I hope they will show in due time. Carter's Cloth of Gold is a great improvement on the old double yellow.—EDWIN JACKSON, *Llandegai, Bangor*.

Grafting Clematisses.—If it be desirable to increase one's stock of these plants, the most favourable season for doing so is fast approaching. Some five years ago I was in a nursery in which we had to work up about 1000 Clematisses yearly, and we never experienced any difficulty in obtaining that number. About the middle of February a few plants of each kind were placed in a slightly heated greenhouse, and syringed once or twice a day. This treatment soon caused them to start, and as soon as the shoots were firm they were taken off and cut up into lengths for grafts, the two leaves and the piece of stem forming the intermediate being quite sufficient for each graft. The stocks were the string-like fleshy roots of *Clematis Vitalba* or *C. Flammula*, every root thick enough to take the graft being used. Either wedge or side grafting will answer, and the grafting should be done with grafting cotton. Each grafted root was then potted into small 2½-in. pots, the root being twisted round in the pot so that the point of union was just buried. They were then plunged in a propagating frame, and very soon were ready to be hardened off. *Clematis indivisa* may be freely propagated in the way just described. I have not yet had an opportunity of trying the new *C. coccinea* (C. Picheri), but it would appear there is not much hope of increasing this plant in this way, as the stems are apparently annual—at least so they have proved with me. Has anyone ripened seeds of this plant? It is a beautiful flowering climber; in fact, one of the finest introductions of the past year.—B.

The Bitton catalogue of trees.—I only drew attention to Loddiges' catalogue of 1823 of hardy trees and shrubs in case it should interest others to see a more extensive list than that given by Mr. Ellacombe, especially of Roses, of about the same date. I am quite ignorant of the size of the Bitton as of the Hackney grounds, and can only regret that Mr. Ellacombe thinks I wished to institute a comparison, of which I had not the smallest intention.—J. DROOP, *Stamford Hill*.

THE CUT-LEAVED BRAMBLE.

THIS variety of the common Bramble well deserves more general culture than it has hitherto received, and perhaps the prominence afforded by the accompanying illustration will tend to further that object. There are many handsome

culture, *i.e.*, taking out useless and old canes, and preserving only the best. The fruit ripens in September, and continues till destroyed by frost.

Some very ornamental plants belong to the genus *Rubus*. One of the finest is *R. odoratus*, which is of erect growth, and bears immense

wall plant, and flowers most profusely; its blossoms are of snowy whiteness and of great size. For shrubberies there are few plants more striking than *R. biflorus*, commonly called leucodermis; its stems are covered with a white bloom, and are conspicuous at a considerable distance. *R. rose-*



The cut-leaved Bramble (*Rubus fruticosus laciniatus*).

forms of Bramble to be found in our woods, and where they luxuriate in moist hilly districts we often find charming bits of wild scenery, of which they form the chief part. In spring we frequently discover the finest Snowdrops and Primroses growing beneath their friendly shelter; this form is, however, not a wild one, though probably found in some English or Continental woods. It has long been known, and was figured as a garden plant by Plukenett in 1691. In order to produce the finest effect it is necessary to plant it in good rich soil where there is moisture and gentle shade. Under such circumstances the gracefully arching shoots will produce well-developed foliage, and, along with the fruit, form a handsome picture. For its fruit alone this kind is sometimes recommended, and justly, for it is superior to that of the common Bramble of our woods. In the wild garden it would be quite at home; its vigorous growth, too, might often help to beautify unsightly corners elsewhere. It may be trained, but it is better allowed to grow as it likes. In the kitchen garden it would be worth growing, perhaps, with the American kinds, which are now almost entirely neglected, though admittedly valuable for their fruit. Referring to this Bramble, a writer in the *Field* says, "If the plants are put out in good, deep, and tolerably rich soil, and allowed to range naturally over hoops stuck in the ground or supports of any kind till they make a kind of framework for themselves, just like the wild Bramble, they will grow and bear freely and abundantly." This expresses nearly all that need be here said with regard to its culture for fruit. It may be added that a certain amount of thinning is desirable, if not necessary, and it should be done on the principle of Raspberry

almost Vine-like leaves, and large showy flowers of a reddish colour. Another, somewhat similar, is *R. nutkanus*, with white flowers. Of the same colour is *R. deliciosus*, which makes a very fine

folius coronarius has pure white and double flowers, and is quite a gem; it makes an elegant greenhouse plant, and blossoms during winter and early spring. *R. spectabilis* should not be passed over; it has pretty pink flowers, and is perfectly hardy, but seems to flourish best against a wall. Many of the genus bear edible fruits. Of the British species not hitherto mentioned *R. cæsius* is the Dewberry, *R. Ideus* the Raspberry, and *R. Chamæmorus* the Cloudberry, and the Roebuckberry is *R. saxatilis*.

R. I. L.

Hart's-tongues.—Are *Scolopendrium* Baxteri, Coolingi, and Kelwayi three distinct varieties of Hart's-tongue? or one and the same? In some catalogues, as, for instance, Messrs. Dickson's, of Edinburgh, *S. Baxteri* and *S. Kelwayi* are synonyms, as are also *S. Coolingi* and *S. Morgani*. In Messrs. Stansfield's, *S. Coolingi*, *S. Morgani*, and *S. Kelwayi* are given as the same;

whereas, in Messrs. Birkenhead's, of Sale, the same three are recorded as different varieties. In other catalogues S. Baxteri, S. Coolingi, and S. Morgani are said to be distinct. Having well-grown specimens of the three, obtained from different sources and as different varieties, I must admit that S. Baxteri and S. Coolingi appear to be quite distinct in both form and foliage, the former being dwarfer in habit and of a lighter green than the latter. S. Baxteri and S. Kelwayi are more alike. Any information likely to throw light on these diverse opinions will be gladly received.—ANGUS D. WEBSTER, *Penrhyn, North Wales.*

GARDEN DESIGN.

FORMING LAKES.

THE formation of lakes requires greater judgment, care, and good workmanship than any other groundwork with which I am acquainted, and no work adds so great a charm to a landscape. The position of a lake will be determined principally by the natural lie of the ground, and also by the points from which it is most desirable it should be seen. These having been decided, levels must be carefully taken, a number of stout stakes being driven into the ground to a given level over the area in order to enable the work to be properly carried out. The outline should then be staked out. This is the most important part of the work, and requires considerable skill in order to secure the best effects. The site should be viewed from every possible point, making notes of surrounding objects and distant views; indeed, in many cases the outline of a lake, and, in fact, all similar work, can be best done from a distance, taking one's stand at points from which the principal views are desired. By waving the hand right or left, backwards or forwards, a man carrying a number of stakes on the site of the lake can easily place them in any position which may be indicated. Mr. Marnock often adopted this method in laying down the margins of plantations, &c. The principal points having been determined, the body of the lake may be excavated to the desired depth, filling up any portions which may require raising. All surplus may be used in forming mounds for plantations. The soil, too, for forming the bank-head will naturally come from the bottom of the lake should there be sufficient, also that for raising islands. Not one inch more of the bottom than is absolutely necessary should be disturbed, as it is most desirable that it should be even and sound. The curves of the outline should be perfectly natural, straight lines and long curves being most objectionable. No better examples as regards this matter can be studied than the banks of natural lakes and rivers, embodying as they do every possible form of natural beauty.

ISLANDS.—In forming these solid ground should be made available. Their design should be free; in no case should they be circular, or in any way approaching that form. Care must be taken to prevent prominent points of the bank in contact with the water from being washed away. This is best done by means of rough stones forming natural rockwork, or roots of trees, timber, concrete, brickwork, &c.; all works of a structural or formal character should be strenuously avoided. Rockwork or rootwork would afford excellent opportunities for planting Ferns and many kinds of water-side plants. The real object of islands is to break up the monotonous appearance of large sheets of water, to shut out objectionable objects, and to throw pleasing reflections on the water.

BANK HEADS.—the construction of bank heads for lakes is a most important work, and one which requires considerable tact, admitting of no

error in plan and detail, or carelessness in carrying out the work; indeed, the whole success in forming lakes depends upon their capability to retain water. It is absolutely necessary that such work should be substantial in every sense of the word. The first matter which will require consideration is the position of the retaining bank, and as this very much depends upon the character of the site, no definite instructions can be given. Very often lakes are formed in valleys through which watercourses pass, and the position of the bank should be such as to necessitate the least amount possible of new material being used; i.e., the solid foundation should be made available where possible. It not unfrequently happens that the sides of valleys are in certain parts higher and the channel narrower than in others, thus affording great facilities for bank formation. Again, another important consideration is the character of the subsoil: gravel, gravelly clays, peat sand, and, in fact, all kinds of porous soils should be avoided, especially sand. The best kinds of soil for the purpose are the different varieties of clays, excepting that just mentioned; other soils, however, are often very retentive, such as rich alluvial material and those which partake of the nature of heavy loams and retentive bog of a very solid character; these are the soils which I should prefer for foundations. Another matter of importance is the shape of the bank; usually banks are made in one curve and concave in form. I do not consider this at all necessary; they may take any desired shape in order to render them the more ornamental. I am of opinion that at the deepest parts of the lake, where a great head of water has to be supported, the right form would be one convex on the water side. The line of bank having been finally decided upon, the next thing to do is to select clay of suitable quality for puddling. Such clay should be free from stones and sand, the latter especially, and it should contain no veins of vegetable or dark-looking earthy deposit, which have a tendency to split up the clay and cause it to crumble. It should be homogeneous, uniform in colour, soft and buttery to the touch, cutting out in solid spits, tough, and showing no disposition whatever to break up into angular pieces, which often indicate the infiltration of sand. The best clays for the purpose are blues, popularly known as blue Dick, and yellows, also known as bung, or pug; the shade of colour I prefer is for blues a moderately light slate, and for yellows a light buff. The clay having been chosen, the next part of the work to prepare is the puddle dyke along the line already decided upon, the width and depth of which will very much depend upon the weight or, what is the same thing, the depth of the water to be held back. From experience I have come to the conclusion that the following calculations may be relied on in this matter, and on the whole the best to adopt. These calculations assume that the conditions are to be considered fairly good where any doubt exists as to the solidity of the foundations, a greater depth should be excavated; the width may, however, remain the same.

Depth of water.	Depth of puddle.	Width of puddle.
3 ft.	9 ft.	2 ft. 6 in.
4 "	10 " 6 in.	" "
5 "	12 "	" "
6 "	14 "	3 ft.
7 "	16 "	" "
8 "	18 "	" "
9 "	19 "	4 ft.
10 "	20 "	" "
11 "	21 "	" "
12 "	22 "	" "

Generally speaking in matters of this kind, some-

one well acquainted with this class of work should be consulted, as plans are often misleading, unless scrupulously correct borings have previously been made. In treacherous subsoils it may be necessary to excavate much deeper than is indicated by plans, whilst in good ones it may be positively injurious to disturb soils in far better condition than any that could be substituted.

PUDDLE DYKE.—In digging the puddle dyke, when a depth of 6 ft. has been attained, it will, in many cases, be necessary for safety that poling boards, walings, and struts should be used in order to prevent the sides of the trench collapsing. The poling boards may be about 3 ft. in length and $1\frac{1}{2}$ in. in thickness; they are placed upright, 1 ft. apart, resting upon the bottom of the trench; the walings, which may be of any handy length, say from 10 ft. to 14 ft., are then placed flat against the poling boards as near the centre as possible, and suitable struts are driven about every 6 ft. across the trench, pressing the walings tightly against the poling boards, putting in another similar frame of timber below the first when a sufficient depth has been excavated, and so on to the bottom of the trench. When the trench has been fully prepared, the puddle, which has been previously prepared in the following manner, may be put in: The clay after having been dug should be carted into a large heap and water thrown over it until it becomes thoroughly soaked; it should then be cut to pieces with spades, grafting tools, or other suitable implements, turned over and soaked again. The same process must be repeated a second time, and the clay must be well trodden until it becomes thoroughly plastic and of the consistence of well-made putty. It may then be wheeled to the trench and thrown on to the bottom; here men spread it to a thickness of not more than 2 in., others follow with rammers and continue ramming until it is well driven together in a solid mass. Rammers made of wood I have found the best for the purpose, especially Larch, to which the clay does not adhere in any quantity. The bottoms of the rammers should not be more than 4 in. or 5 in. in diameter. Too much attention cannot be bestowed on this part of the work, as upon it depends the success of the undertaking, so far as regards its capability of retaining water. The whole length of the trench should be carried up simultaneously, not working up a portion and then commencing another. In many cases a quantity of water is thrown upon the puddle during the process of treading and ramming. This I consider to be an objectionable practice. I much prefer the clay, as before mentioned, of the consistency of putty, and if it has been properly prepared, every particle will be thoroughly soaked. My opinion is that the puddle should be in the same condition when thrown into the trench as that in which it is likely to remain.

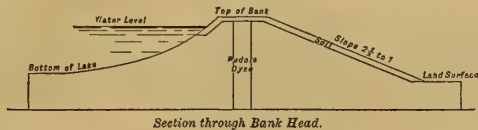
THE BANK.—As soon as the puddle has been brought to the surface of the solid ground, the formation of the bank must be commenced, as it is necessary to carry it up simultaneously with the puddle. Turf or solid pieces of clay should be cut of a regular size and laid on each side of the trench, closely together, in a similar manner to bricks in a wall, great care being taken that no interstices are left. These walls of turf or clay should then be backed up with earth and rammed as the work goes on. A convenient height to keep these walls above the puddle is about 1 ft. The shape of the bank is of great importance. So far as regards the side exposed to the water, this must be somewhat flat and concave in form, in order that the water may rather lie on the bank than press against it. The slope should be at least 4 ft. to 1 ft. The shape of the slope on the land side may be made to suit any

design which may be desired provided the slope be not less than from, say, 3 ft. to 1 ft., unless protected by a strong structure as a concrete wall or any work of a similar character. If the bank has been made in accordance with the foregoing principles there will be no danger of leakage. The puddle must be carried up to at least 6 in. above the water level for very small lakes, and more in proportion in the case of larger lakes, especially those much exposed. The whole surface of the bank, with the exception of that below the water, should have a coating of soil at least 1 ft. thick on the sides and 6 in. on the top (which may be from 5 ft. to 20 ft. in width), in order that Grass may grow freely upon it. This will materially assist in keeping the surface intact. I may add that the puddle dyke should be well carried out at the ends, forming arms, as it were, to embrace the water. This is a necessary pre-

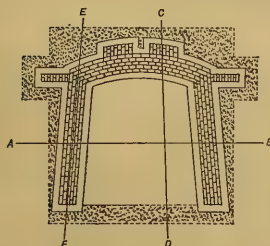
This should be done when the dyke is being puddled. Then 2 ft. of well-made concrete should be put on the top of the puddle; this should consist of clean gravel of good quality, angular—not round—stones, sharp sand, and good hydraulic cement in the following proportions: stone, four; sand, two; cement, one. These ingredients must be thoroughly mixed upon a platform of planks before water is used; they must then be made sufficiently wet that the whole is in a state of mud, but not so wet that the water carries away any portion of the cement during the operation of soaking. As the materials should be well mixed, small quantities only should be made at a time. When made, this concrete should be thrown on to the puddle from a height of 10 ft. or more where practical. It must not be touched when once in its place except to smooth over the surface when the whole quantity has

amount of water to be carried away, and this should be correctly calculated. The front and wing walls should be two-and-a-half bricks in thickness; this I believe to be sufficient in all ordinary cases. They should have footings at least $4\frac{1}{2}$ in. beyond the perpendicular of the walls on each side, with three steps setting off $1\frac{1}{2}$ in. each time. The whole work must be carried up in cement, and every course thoroughly grouted in. The front wall should have a projection built out at each end of at least 3 ft., which may consist of one-and-a-half bricks thick. This is in order to break the plain surface and form angles to retain the puddle; all angles must be tied with coping irons. The wing walls to be coped with bricks on edge, and ultimately covered with soil and turf. The front wall may be coped with stone, bricks, iron, or wood. If with the two latter, they should be tongued and floated in with good cement; the shape of the coping should be semi-circular, or what is termed bull-nosed. The backing-up of the walls must be puddle, rammed in exactly the same as the puddle dyke, taking care that the angles are well filled up and that the brickwork is not disturbed. The floor of the overflow may be raised to any desired height by adding as much concrete as may be necessary; then paved with hard paving bricks on edge, placing a sill of wood or iron at the edge of the floor to retain the bricks. An apron of wood or other substantial material should also be carried out in front of the floor, in order to prevent the washing away of the soil and thus endangering the safety of the foundations. For additional strength two piers may be built up against the front wall on the water side, tying them in strongly. They should be brought up about two-thirds of its height. The bank should be made up to about 4 ft. below the overflow, the base being carried out in the same manner as the main portion of the bank. An overflow constructed in this manner will be thoroughly strong and substantial, and susceptible of any ornamentation which may be desired. Overflows should always be constructed in a corner—never in the centre—of the bank-head, unless structural difficulties of a formidable character present themselves.

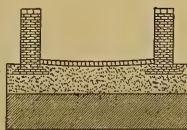
PLANTING.—Planting is a most important branch of the subject, and one which requires care and judgment. It is, so to speak, putting the finishing touch to the picture. Every line of sight should be well considered, especially with the view of giving light, shade, reflections, and extent. Massing is the most suitable kind of planting in the vicinity of water, rigid, weeping, and feathery trees and shrubs being especially desirable. The planting must be so disposed that a too large expanse of water is nowhere seen, which gives a too glassy appearance. Islands should be sufficiently near the margin to join their shadows with those of the planting on the banks. Many very beautiful pictures may thus be formed, giving depth, mystery, and river-like effects. Another advantage of proper planting is, as before mentioned, to give unlimited extent, the water losing itself, as it were, in the distance. In the more secluded portions of the lake shrubs may be densely planted in the foreground, dipping their foliage into the water, and backed up by massive deciduous trees. Here and there noble trees should be planted singly somewhat away from the margin, with broad sweeps of Grass sloping gently towards the edge of the lake. Aquatic plants also will add beauty to the scene if planted in the right positions, that is, in the shallow waters at the margins of inlets. Ferns and alpenes may be planted on rockwork or rootwork formed on islands, or the projecting portions of the margin; clumps of Yuccas, Pampas Grass, and similar subjects may occupy sheltered positions formed by the hollowing out



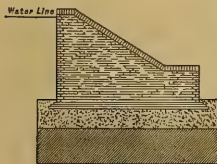
Section through Bank Head.



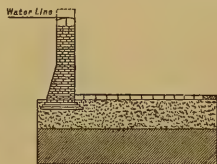
Ground-plan of overflow, showing concrete walls and footings.



Cross Section A B, showing puddle, concrete, and floor.



Section E F, showing side wall.



Section C D, showing front wall and floor.

caution to prevent the escape of water at the ends of the puddle dyke.

OVERFLOWS AND OUTLETS.—These must of necessity be constructed in all lakes which are plentifully supplied with water—the first to carry away surplus water; the second to empty the lake when necessary, in order to remove the mud, or for other purposes. The form of overflows may be very varied; it may perhaps be sufficient, however, to say that they may be made of stone, brick, wood, or other durable materials. They may be ornamental, as, for instance, in the shape of waterfalls, rockeries, &c., or simply plain, serving only the purpose of carrying off the effluent water. I will describe the latter only, as any kind of ornamentation may be added when once a permanent overflow has been constructed. The excavation for the overflow and outlet should be carried down to the same depth as the puddle dyke, and should be filled in with puddle to within 4 ft. of the bottom of the lake.

been thrown in. The practice of ramming concrete is in my opinion a bad one, especially when it sets quickly, as cement-concrete should do. As soon as the first 2 ft. of concrete has been put in its place the outlet should be fixed. This must consist of iron-socketed pipes of sufficient dimensions that the water may be run off the lake within a reasonable time when necessary. One end should be carried well out into the lake at the deepest part and fitted with a suitable iron grating. All the joints should be made perfectly tight with yam and metallic lead. The valve should be placed in a convenient and accessible position, and the lower end of the pipe must be carried well away from the base of the bank and fixed in a brick heading. The pipe on the site of the overflow may then be covered in concrete formed as before, upon which the brick or stone work should commence. The quality of the materials used must be of the best description. The size of the overflow will depend upon the

of plantations. No large growing trees should be planted on or near the bank head, as in all probability during boisterous weather they would disturb the foundations and cause leakage. All planting at the back of the bank should be at a safe distance from its base. The reflections of the sky on the water being of great importance, care should be taken that the sky line may in some parts be perfectly free. This should especially be the case where the line of sight is not obstructed by distinct objects; overflows, formal structures, and all objectionable features should be carefully hidden in the course of arranging the planting. Deciduous trees have a pleasing effect near water, owing to the well defined shadows, which they produce. In many cases where it may be desirable to construct rustic bridges, summer-houses, &c., they should be freely draped with Clematis, Virginian Creepers, Ivy, and plants of similar character. A wild garden or wilderness is a most desirable adjunct to lakes where the space is unlimited, and here may be planted all the taller varieties of herbaceous plants, Lilies being especially effective in such positions.

GENERAL REMARKS.—The ground in the vicinity of lakes should be comparatively dry and accessible in all weathers. Paths should be formed round the margin of a circuitous character, losing themselves behind plantations, and again appearing in full view of broad expanses of water, ornamental nooks, &c., sometimes passing below the level of the water, at others rising over prominences considerably above it. If this is judiciously carried out, extremely effective views will be the result. These elevations and hollows will afford positions for seats, rests, or temples; no trees or shrubs should intervene between the mansion and the lake, except such as can be effectively combined with the planting. The water supply may be made ornamental by a series of falls over rockwork, and if skillfully constructed and planted are a feature in themselves, especially when seen from elevated positions, or through glades. Different sites will undoubtedly require dissimilar treatment, but many of the above suggestions may be made available in the majority of cases. Be sure above all things that the outline and planting are well considered, that the structural portions exposed to the action of the water are perfectly substantial, that the clay and all other materials used are of the best description, and that the whole work is carried out in a proper manner.

C. D.

WORMS IN GARDENS.

IN spite of the courteous invitation of "G. S. S." (p. 23) to obtain and read Darwin's book on worms, I feel not the slightest inclination in that direction, in consequence, I suppose, of having thoroughly read some of the earlier works of that eminent author. But I trust to be allowed space for an endeavour to account, on other grounds than the worm theory, for one or two of the facts mentioned by "G. S. S.," the chief one being the burial of the stones in the famous field of chalk. I consider myself justified in asserting that, if the ground could have been kept free from worms, the vegetable growth, &c., of thirty years would have buried the stones as effectually as they are at present. As the field is on a slope, it is fair to assume that the washings of heavy rains, drifting of dust, &c., from higher land, have had something to do with it; and sudden thaws in winter by loosening and soddening the soil would allow the superior weight of the stones to assist in their burial. The actual increase of organic matter must, however, be the most important factor in this case. If, in dry weather, a portion of the ground were saturated with nitrate of potash, and then fired by means of kerosene, so as to thoroughly burn out the organic matter, leaving the stones

in situ, I think that some of them might possibly reappear. I by no means deny that worm-casts have some influence in this matter, but I cannot possibly regard their action as more than one of many causes, and not the most important. If the worm-casts were not washed back into the ground by heavy rains, how is it that the soil is not honeycombed by the removal of the enormous quantities of mould with which they are credited?

Dust must naturally form drifts when there are obstructions in its road, and I think antiquities are often buried by its accumulation than by the efforts of worms. On all old buildings the constant decay and erosion of the material of which they are constructed, assisted by the growth of Lichens, Mosses, &c., which scale off in hot weather, must necessarily assist in their burial. I leave out of consideration the constant, if slight, showers of meteoric dust to which our earth is subject, if astronomers are right. By the percolation of rain water through the soil there must also be a slight, but continuous subsidence of it, as we know that while rain is practically free from organic matter, when it reappears in springs, &c., it is more or less heavily charged with organic salts, and the air it carries down with it is also performing its part in oxidising the organic matter and rendering it gaseous; so that a continuous wasting is going on in all porous soils, or how can you account for antiquities being discovered very much below low worm mark, as they often are? Active vegetation also is continually transferring the lower portions of the soil to the surface, and its influence must by no means be overlooked. For the last two years I have been in New Zealand in a district notorious for its sterility, where, if anywhere, worms could find ample scope for their creative powers (and the worms there are thrice as large as at home), but I could only find them, when I wanted them for bait, by digging on slightly conclave flats, where the natural growth of vegetable matter was added to by that carried there in rainy weather.

As to comparing the levelling powers of worms with those mighty agents of Nature—water, frost, and wind, why I cannot think anyone could seriously entertain such an idea. From my window I look upon a field ploughed last November; the nearly levelled surface it now has is owing entirely to the rain that has fallen since then: had frosts and thaws assisted but slight traces of the ploughing would now remain. I think it is not worth while to enlarge upon this matter, or I would instance bogs, ponds, &c., as proving the power of vegetation and drift to form soil, but as for worms burrowing into poor soil and bringing it to the top, why my experience tendeth quite the other way, and I can only obtain that reprehensible breed which burrows into good fat soil and turneth it out poor, yea, very poor. Lastly, I am of opinion that I confined myself to objecting to worms in cultivated ground; I do so still, yet fully convinced that they perform an allotted, and, therefore, necessary, task in the economy of Nature.

LONDON STONE.

Mr. T. Moore.—The retirement of Mr. T. Moore from his editorial duties has recently taken place. A movement has been made towards a public recognition of Mr. Moore's labours in horticultural literature as well as of his constant and disinterested devotion to social matters connected with horticulture. The result of the first step in this matter was the formation of a committee charged with instructions to provide—for a time and place hereafter to be determined—a substantial presentation, and with it some suitable expressions of appreciation and good wishes. We are informed that it is the wish of the committee that the subscription should be as general as possible. The honorary treasurer is Mr. Wm. Paul, of Waltham Cross, and the honorary secretary is Mr. Shirley Hibberd, 15, Brownswood Park. Mr. Moore has deserved well of the horticultural world. His work has been for many years of the highest value to horticulturists. No man perhaps knows garden plants so well as he does, and has made such good public use of the knowledge. We have great pleasure in joining the movement,

and feel sure many of our readers who know Mr. Moore will have a like feeling.

THE GARDEN FLORA.

PLATE CCCXXI.—MODIOLA GERANTOIDES.

THIS charming little plant seems to be the only representative, at present, in gardens of a small genus of North American plants belonging to Malvads. It is a much-neglected plant, for though it has long been in cultivation it is seldom met with, and it is with the view of making it more generally known that we now give an illustration of it, prepared last summer from a plant in the late Mr. Joad's garden, Oakfield, Wimbledon. It is essentially a rock garden plant, delighting in warm, dry places open to the sun, and well drained. It looks best planted so that its spreading tufts fall over the ledge of some rock. Unlike its congeners, it is a true perennial, and when well established requires no further attention. It may now be seen in a few of the large hardy plant nurseries about London, and particularly at Messrs. Barr & Sugden's, Tooting, where the plant seems to have secured a foothold; we have for years past seen it better there than elsewhere. The name does not occur in botanical works, but it is that by which the plant is generally known.

W. G.

Winter flowering Pelargoniums.—I grow several of the varieties mentioned in last week's GARDEN, and can endorse all that is said in their favour, but there are two not mentioned which, I think, surpass all the others; these are Tarquin (scarlet) and Dreadnought (pink). Of the former of these I have a two-year-old plant which has been in the conservatory from the middle of July, and which has been constantly in bloom from that time till the present, when it has about a dozen good trusses on it, and several more showing. There is no doubt that the conservatory is the place for these plants rather than the flower garden, especially in Cornwall, where we have so much rain.—JOHN C. TALLACK, *Prideaux Place*.

Lilium candidum as a pot plant.—I always require some stately flowers for church and other decorative purposes, and give a preference to those that come out well from a darker background. From this point of view there are few things to compare with this noble, easily-managed Lily that would be much more admired if it came from California or Japan instead of from where I take it (any time after growth is completed)—the flower borders. I lift the bulbs with little soil, but with every rootlet possible complete, and pot into not larger than 8-in. pots. I do not want tall stems, and can feed with liquid manure if I so desire. I transfer them again to the border for ripening purposes. Need I refer to its gorgeous beauty and fragrance. This is the Madonna Lily of the Italians. I understood there are varieties with golden and silver-striped foliage, and others double, all of which must be very desirable.—W. J. M., *Clonmel*.

Gladiolus Ville de Versailles.—I am pleased to find such success attending the winter-blooming of this variety. My first observations as regards its culture were made in the winter of 1879 on a very late planting (May) in the open air, when I had the sad experience of having all the blooms destroyed by frost in November or December, I forget which. The bulbs were shortly afterwards lifted and left to dry in a loft, stalks and all. I then suggested the idea of a late planting in pots to that enthusiastic lover of flowers, Mr. W. E. Gumbleton, and with what success see his note in THE GARDEN, of December, 1880. This past week you have two more correspondents writing in its favour (Mr. Crane and Mr. Shaw). I have not the least doubt that the same good results would attend late plantings of all the ra-



Mme. LA DEPAULIERE

mosus section of early flowering Gladioli. Simply pot in May, and plunge under a north wall in coal ashes, following to the letter Mr. Crane's instructions (p. 529, Jan. 1881). It is hoped after this hint that what we have accomplished with Zonal Pelargoniums with heat under glass can be effected with Gladioli in a cold house with very little trouble or expense and no heat.—W. B. HARTLAND, *Temple Hill, Cork.*

GARDEN DESTROYERS.

THE PEAR SUCKER, OR JUMPING PLANT LOUSE.

(PSYLLA PYRI.)

PEAR trees are very liable to the attacks of these little insects, which are nearly allied to the aphides, and they, like them, often seriously injure the trees, &c., which they infest, by sucking the juices from the young shoots and leaves. They, however, belong to a different family, and possess the power of jumping, which the aphides have not, and, unlike the latter, the perfect insects are not injurious to vegetation. This insect attacks the young shoots and the leaves



1, Pear sucker (slightly enlarged).
2 and 3, Pear sucker (magnified considerably).

when in the larva state, and if present in large numbers, much of the sap is withdrawn by them, and the pores of the leaves are so clogged up by their sticky secretions, that the leaves wither and curl up, and the fruit does not come to perfection. It is very difficult to destroy the perfect insect in any way, as they are very active, and fly and jump very readily and are easily alarmed; syringing the trees would have the temporary effect of driving them off, and if an insecticide was used, such as 1 lb. soft soap, 1 lb. flowers of sulphur to eight gallons of water, or soft soap and tobacco water, which would adhere to the leaves, the trees would probably be rendered distasteful to them, and they would not return. The larvae have no wings, and may be destroyed by the means just recommended for driving away the perfect insects, or with Gishurst compound and tobacco water, which is, perhaps, more efficacious. Syringing the trees with soft soap and water in the winter when there are not less than 6° of frost, so that the trees become covered with ice, is said to be a very useful plan, as when the ice thaws it brings away all insects' eggs, &c., which may be attached to the bark or hidden in cracks, &c. Miss Ormerod bears testimony that Pear trees are not injured by this process at a lower temperature than that just mentioned.

Some of the perfect insects survive the winter, sheltering in crevices in the bark and in other con-

venient localities. As soon as the buds begin to burst in the spring, the Pear suckers leave their winter quarters, and, after pairing, the females lay their eggs on the undersides of the leaves on the young shoots, or the more persistent parts of the flower. The eggs are oval, yellowish, and are laid in large numbers near one another. The larvae are hatched in the course of ten days or a fortnight, and begin feeding by thrusting their probosces into the leaves or shoots; they soon assume the pupa state, when they much resemble the larvae, but they are darker and have the rudiments of wings. They then migrate from the leaves and congregate in large numbers on the shoots, from which they draw off the sap in great quantities, and void a sweet secretion in such abundance, that the pores of the bark are quite choked by it. Ants are remarkably fond of this fluid, and may generally be found on trees infested by these insects. As I mentioned in a previous article, if several ants are found on a plant or tree, it is a sure sign that the plant is attacked by insects belonging to the Natural Order to which aphides, scale insects, and the subject of the present article belong. When the pupa is fully matured it again visits the leaves, and, fixing itself firmly on one, its skin cracks and the perfect insect crawls out.

The Psyllidæ (so named from their saltatorial powers), when fully developed, are very much like their near allies the froghoppers, and they also resemble them in their powers of jumping; they are classed by entomologists between them and the aphides. The genus *Psylla* contains nearly thirty species, one of which, *P. mali*, is very similar in general appearance and habits to *P. pyri*, and attacks Apple trees. The Pear-sucker measures about $\frac{1}{8}$ in. in length, and about $\frac{1}{16}$ in. across the wings when fully expanded. When they first emerge from the pupa skins they are of a greenish colour with red eyes, but they subsequently become of a reddish, or crimson colour, shaded with black, which latter tint sometimes predominates. The wings with both males and females are provided are quite white. The head is wide, furnished with a pair of longish antennæ, each consisting of ten joints, the first or basal one being short and stout; the terminal one is provided with two stout hairs, a peculiarity by which members of this family may be recognised. The mouth is formed into a rostrum or beak, from the point of which the insect can thrust out several long hair-like filaments, with which it pierces the leaves and bark; this beak appears to proceed from the breast of the insect, indeed almost from between its front legs. The body of the female terminates in a longish ovipositor. The larvae when full grown are about 1-10th in. long, or somewhat longer, are of a yellowish colour and wingless. The pupæ are slightly larger than the full-grown larva, are wider and flatter, and of a darker colour, and the immature wings of the perfect insect are conspicuous beneath the skin of the pupa.

G. S. S.

Leaf-shaped labels.—If the object is to produce such a label as would not be unsightly, but yet durable and legible, why not adopt a natural form? For instance, in labelling Acers, what objection could there be to appending a label in form and colour like a leaf of the tree itself? Of course, very many plants, as alpine and others of a herbaceous character, have foliage too small for the purpose; but do not the leaves of trees sometimes fall upon them? If so, why not adopt some form of a leaf for a label, even for them? Zinc, bronze, iron, &c., are susceptible of taking any form; the name could be cast with the label or written as might be desired. I think such would be at once artistic and in no way objectionable. I have always been of opinion that in too many matters we neglect to follow the lessons so abun-

dantly set before us by that master of composition—Nature.—C. D.

THE KITCHEN GARDEN.

BRUSSELS SPROUTS WITHOUT TRANSPLANTING.

The plan of sowing the seeds of these in the ordinary way and at the same time at which early Broccoli and winter greens are sown may in some places prove satisfactory, but in some localities a different system has to be adopted in order to secure them in good condition. The garden of which I have the care lies high, and the soil is cold and ungenial, circumstances which necessitate my devoting more than ordinary care to the production of this crop. The selection of a good strain is of great importance. There are several with high-sounding names, but as they are merely selections it is only necessary to choose from a good type to secure all that is desired.

Sowing the seed.—Early in March I select a piece of ground that has previously been deeply dug and manured, and which has not lately been occupied by any member of the Brassica family, for it is important that a thorough rotation of crops be studied in order to secure the best results. I then draw drills $\frac{1}{2}$ in. deep and 2 ft. apart, and sufficient in number to meet my requirements. The seed is then sown very thinly in the drills and lightly covered over, and as soon as the plants are large enough to handle, we thin them out to a distance of 2 ft. from each other. By adopting this plan it will be seen that transplanting is done away with; consequently the plants receive no check. The tap root is not severed, consequently it penetrates deep down into the soil, and the result is that if a dry summer occurs the plants are in a much better condition to take care of themselves than those transplanted from a seed-bed. At the end of the season, too, it will be found that there is a clear gain of a fortnight or three weeks in the state of the plants (even if sown at the same time) compared with those transplanted. This plan is specially to be recommended for those who have not the convenience of

Raising the plants under glass.—There are two ways of doing this; a slight hot-bed may be put up about the middle of February, and a frame put on it. About 6 in. of soil should be placed in the frame, and in this the seed should be sown. In the same frame early Cauliflowers and Lettuces may be raised, and they will all succeed under the same treatment, but there must be no coddling. They require plenty of air in order to get them hardy. About the middle of April, they should be large enough to be pricked out into another frame, or placed on a south border where they can have the shelter of a spare light or two for about a fortnight, after which if gradually inured to the air they will take care of themselves.

Another plan is to sow the seed about the end of February in a cold Peach house. This is what I have done during the last five years, and I find it to answer admirably. Between the trees on one of the borders of an unheated Peach house, where the position is light and plenty of air admitted, the seed is sown. From this seed bed the plants are taken as soon as they are large enough and pricked out 6 in. apart each way in some temporary frames where they have the shelter of glass lights night and day for eight or ten days. The lights are taken off in fine weather during the daytime and replaced at night for a week longer, when they are fully exposed.

Planting out.—If all has gone well with the plants raised in either of the ways just indicated, they will be ready for planting out permanently by the middle of May, and this is not a day too early to obtain stems 2 ft. to 3 ft. high well furnished with sprouts from top to bottom. The distance at which the plants should stand from each other should depend on the quality of the soil. In light, poor soils, whether the seed is

sown where the plants are to stand to make their growth, or the plants are raised in any other way 2 ft. apart each way, I consider is the least distance apart at which they should be planted. In strong, rich soils 30 in. each way is none too much in order to secure a vigorous growth in all the crops.

Successional crops.—I find that plants from early-sown seeds get exhausted early in the winter if a mild autumn occurs, and in order to prevent any scarcity of sprouts it is necessary to have a successional crop in case the earliest should run out before the season is over. For this crop the seed may be sown on a warm border about the middle of March, and if sown thinly broadcast the plants acquire sufficient strength in the seed bed without being pricked out. As soon as they get large enough they should be planted out. The soil for these should be rich and deep, and if dry weather occurs at the time at which they are planted they should have two or three soakings of water in order to assist them to take hold of the soil. If put out 2 ft. apart that will be sufficient room, as they will not get so large as the produce of the earliest-sown seed. It may not be amiss to say that through the summer months it is very beneficial to the crop to have the Dutch hoe applied vigorously between the plants every two or three weeks; it will keep the surface open and destroy weeds. J. C. CLARKE.

COLEWORTS.

THESE, though one of our most useful winter vegetables, are not, as a rule, grown so much in private gardens as one would expect them to be, and they are seldom seen in cottagers' gardens, but our principal market men grow them upon a large scale. They are generally sold as bunched greens, and very profitable they are. Being very hardy, they will withstand the severest winters, even when other crops are destroyed. The *Rosette* is the most useful for early crops, as it forms nice compact heads during the autumn, and keeps good for a long time after it becomes closely hearted. The hardy green *Colewort* seldom hearts like the *Rosette*, its leaves being loose and more spreading, and somewhat less tender when cooked. *Colewort* seeds are often sown too early in spring, and in that case the crop comes into use in autumn, when there is plenty of late Cabbages to cut from. Cabbages for early autumn are more profitable, and by growing some hardy sort, such as *Early Heartwell*, one is able to have a good supply until late in autumn, when the *Coleworts* should be ready to take their place. I made my first sowing in the second week in May, and my sowing for the main crop the second or third week in June, the produce of which I find comes in in good time for my winter crops of both sorts. The ground must be well prepared before the seeds are sown, for the result depends upon getting strong, healthy plants with which to make the plantations. The seeds may be sown on beds 4 ft. wide with 12-in. alleys between them, or drills may be drawn 3 in. apart upon a piece of ground firmly raked. After sowing some fine soil mixed with a portion of lime and burnt wood ashes may be strewn over the seeds. These invigorate the young seedlings, which when drawn from the beds are furnished with a mass of clean healthy roots. If the ground is dry give it a good soaking of water with a coarse-rosed watering-pot the day previous to sowing, for if dry the seeds will not germinate freely, and if watered after the seed is sown a hard crust is formed, and the seedlings seldom do so well as when the beds are thoroughly moistened before sowing. As soon as the seedlings have got into the third or four leaf prepare a piece of ground well enriched with rotten manure, and upon this prick the young plants out from 3 in. to 4 in. apart. In this way stronger plants are produced than if they are drawn from the seed beds. When large enough to plant out and the ground ready, plant in rows 12 in. apart and 9 in. asunder in the row. Old Strawberry beds make good ground for *Coleworts* when picking is finished. Trench them

deeply and manure them well before planting. From such ground a fine crop of useful *Coleworts* may be expected. WM. CHRISTISON.
The Rookery, Bromley Common.

Mushroom growing.—From the first week in February to the middle of March is the best time in the year for making up Mushroom beds, either in or out-of-doors. Many have failed through making up their beds at wrong seasons, but if tried at the above time with ordinary care a crop is certain; and with success, confidence and experience are both gained, and Mushroom culture is thus made easy.—JOHN F. BARTER, *Portland House, Lanehead Street.*

Vick's Criterion Tomato.—This is one of the best Tomatoes for winter work, as it sets its fruit more freely in the short dark days than some of the other sorts. It is very distinct from the large flat Tomatoes so popular in summer, being pale red, nearly oval, and beautiful even in outline. It bears its fruit in clusters, consisting of from three to six in each cluster. At this time of year the blossoms should be fertilised with a small camel's-hair brush, and if kept in medium-sized pots it will be more prolific than if pushed into over-vigorous growth, as when a good crop of fruit is swelling they can be assisted with copious supplies of liquid manure, and slight top-dressings of rich manure will keep the plants vigorous for a long time. Tomatoes are in request all the year round, but especially in winter and the early spring months, and for keeping up a supply of them I find nothing to beat *Vick's Criterion*, and for the more favourable time of year Hathaway's *Excelsior* and the *Trophy*.—J. GROOM, *Linton.*

Bottoms of Mushroom beds.—"J. E." (p. 13) recommends iron gratings for bottoming shelves in Mushroom houses. I have seen them in use quite twenty years ago, and they answer the purpose very well. A gentleman in the iron trade in one of the midland counties erected a Mushroom house and bottomed the beds with open gratings instead of having them closely boarded. When making up the beds a thin layer of turf, with the Grass side downwards, was placed on the gratings; the beds were then made up of horse-droppings, spawned and soiled over in the ordinary way. The result exceeded all expectation. The beds were literally covered with Mushrooms, as many seeming to come through the gratings at the bottom as on the top. I made up my mind at once that if I ever had to erect Mushroom houses I would adopt the system in question, but never yet have I had an opportunity to do so. I, however, invariably obtain good results from beds on the floor. In December, 1870, I called attention to making up beds in the way described, so probably someone may have given the plan a trial, and if so, I should be pleased to hear with what result.—H. HARRIS, *Denne Park, Horsham.*

Diseased Cucumbers.—I should be much obliged for the opinion of your readers in the following case: Last year I grew part of my Cucumbers in frames with bottom-heat derived from beds made up in the usual way, consisting of leaves and manure, and part in pots. The soil used for those in frames was leaf-mould, the remains of a spent hotbed, and a little loam. To the pot plants I added well-rotted cow manure and gave them occasionally manure waterings. The pot plants I grow in large pots on shelves in a forcing house in order to have fruits in May or June. My plants went on well as regards growth, and fruits set well, but when the latter were about one-sixth of their size they suddenly stopped; instead of being straight they turned round-shaped, and a green-like substance exuded from them. At the same time the fruits were attacked, the disease appeared on the stems and leaves, which became brown-spotted. Of the plants in the frames not one fruit could be used. The plants in the house were a little better. Before this occurred I never experienced any difficulty, the crop being always satis-

factory. The seeds used last year and before were imported from England. The sorts grown were Improved Telegraph, Tender and True, Masters' Prolific, Sion House Improved, Pearson's Long Gun, and Market Favourite.—LOUIS KROFATSCH, *Lazernburg, Vienna.*

Winter and spring salads.—The winter has thus far been favourable for a good supply of salading. Celery has been a first-rate crop, no trace of the dreaded fly having presented itself to retard its growth. The latest crops must now be earthed up, and protection should be in readiness and fit for use. I find nothing in the way of Celery equal to the Dwarf Incomparable White, being short and sturdy and nearly all heart. Endive, both curled and Batavian, must be got into cold frames and blanched as required for use; with us it has kept best on ridges between late Celery. It will now be removed with good balls of earth and set thickly in frames, or in cold houses, moving it into a dark house to blanch as wanted. Lettuces may be packed moderately close in cold frames, but the best of all for winter, the old Brown Cos, will keep well out of doors under a slight covering of Bracken or old Asparagus tops. Chicory must be potted and placed in a dark, warm house, such as a Mushroom house, or in forcing houses, with an inverted pot over it to blanch the tops. Tarragon roots must be potted and placed in a temperate house; it is indispensable in salads. Mustard and Cress should be sown in boxes about every third day, a brisk heat being necessary to get them mild in flavour; they may, when fit, be removed to a cooler house until required. Chervil is best grown against the foot of a wall, where it can be readily protected with thatched hurdles. Radishes should be sown on slight hotbeds, either by themselves or in rows between early Potatoes.—J. GROOM, *Linton.*

THE FRUIT GARDEN.

PROTECTING FRUIT TREE BLOSSOMS.

THE time will soon be here when it will be necessary to protect the blossoms of our fruit trees. The question I should like definitely settled is, Is the makeshift system that we sometimes see advocated and resorted to of any value? In my own opinion it is not. What I mean by the makeshift system is the placing of Fir branches on the trees when they are in flower, with the view of shielding the tender parts of the flowers from harm. Like a good many others, I have practised this plan, and have sent men a long distance to get Yew and other branches, and have carefully fixed them on the wall to afford shelter, but I must confess that I have never reaped an adequate return in fruit for the time and labour bestowed upon such work. I therefore look upon these makeshift methods of protection as useless. We must not expect any benefit from any sort of material that will exclude light unless it admits of being put over the trees at night, and taken down again in the morning. Light, I find, is a great factor in bringing to maturity the organs of fructification, and when excluded the crop suffers as much from that as from cold. It may be said that there is no necessity to exclude light even when green branches are used for protection, but I fail to see the force of such reasoning when not only is the light in some measure obstructed, but the air and sunshine also prevented from reaching many of the blooms when the trees are so protected. As a makeshift nothing is better than netting, put over the trees two or three folds in thickness, as it admits a fair proportion of light, and permits the air to play about the flowers. Its frost resisting powers are not, perhaps, very great, but still it does afford some protection even against frost. Tiffany and the various descriptions of netting recommended to be put over the trees as soon as they come into flower and not to be taken off again until the fruit is set, are, I believe, of no value, and, if I am not much mistaken, the trees suffer more through being covered up after the material is

removed than they do when left wholly unprotected.

From what I have already written it will be gathered that I am an advocate for giving our fruit trees an efficient protection or none at all, and I may say that I have not arrived at this conclusion without giving the subject full consideration, aided by not a few years' experience. What I consider an efficient protection is, in the first place, a

Glass coping, proportionately wide according to the height of the wall. My experience of glass copings leads me to believe that for a wall 14 ft. high they should not exceed 2½ ft. in width; wider copings are, no doubt, all very well, and the wider they are the better protection they afford the trees, but there are other considerations that should influence the decision in this matter. The wider the coping the less rain reaches the roots, and in gardens where labour is short and the supply of water also, the question of keeping the roots supplied with water is one of considerable importance. Moreover, Peach and Nectarine trees grown under wide copings of glass require more syringing to keep them free from insect than those not so grown, or those under a covering of less width. For walls 10 ft. high a coping 2 ft. wide is ample. Besides the copings there should be

Curtains hung before the trees. Taste and circumstances may have something to do in deciding on what sort of material such curtains should be made; but if there is any choice I give a decided preference to Frigi domo. We have had this material in use for this purpose for these last five years, and I see no reason why it should not last for five years longer. Our curtains are made 10 ft. wide; they have brass rings at top and bottom. At every 10 ft. apart we have upright pieces of wood which are kept in their places by being let into the ground, and a piece of iron driven into the wall holds the top upright. An iron rod, the same width as the curtain, is fixed on the coping, and another rod to the uprights at the bottom. On these rods the rings work, and the curtains when open are made secure to the uprights by a strong tie. At night they are drawn over the trees whenever there is any danger of frost, and withdrawn in the morning. As has just been stated, our trees have been treated in this way for the last five years, and the result is we have not had a failure since we used them. Two years we had fair crops, and the other three full crops; therefore they have more than paid for the outlay. The labour of attending to the curtains is but little compared with the difference as regards results; before we had the curtains we did not on an average obtain a full crop of Apricots once in four years.

For low walls, that is, walls 8 ft. high, a glass coping 2 ft. wide and curtains would not mean much expense; for walls 6 ft. or so high, fixed curtains might be dispensed with, and, if desired, a piece of Frigi domo or strong canvas might be tacked to two stout poles placed against the wall. For pieces of canvas 8 ft. or 10 ft. wide the poles should be closer to prevent the wind from beating the curtains against the trees. When curtains are worked on rings a stout piece of tar cord run from one upright to the other about half way from the top answers the same purpose

J. C. CLARKE.

INSIDE V. OUTSIDE VINE BORDERS.

The opinion is evidently gaining ground amongst Grape growers that inside borders for the roots of Vines are best. Taking the condition of the Grape crop over a wide range of observation, I think it will be found that the best crops are upon Vines the roots of which are inside the house. I do not mean to say that good crops are not to be met with where the roots are in outside borders, but the best crops I have seen have been on Vines whose roots are all inside, especially Muscats. The fine examples of these annually produced at Ashton Court may be cited as a proof, but as a single instance of success carries but little weight, I may remark that I could name half-a-dozen

other places in which Muscats are grown under similar conditions and with equally great success. That the inside border is 5° or 6° warmer in the months of August and September than that outside is, to my mind, conclusively proved, but yet this does not sufficiently account for the vigorous condition and excellent crops that exist where the Vines receive this advantage. Had there been a difference of 10° or 12° I could better have understood such a result. However, receiving this slight advantage at a time when all the energies of the plants are heavily taxed to mature the crop may be sufficient to account for the extra vigour and fine crops. It is pretty clear, however, that another advantage which Vines in inside borders have is that their roots are kept generally in a more uniform condition as to moisture. In this country Vines that have their roots in outside borders receive the most water when they are at rest, and when they least need it; whereas, in inside borders the reverse is the case, for the cultivator naturally gives his Vines most water whilst they are in active growth.

If, however, inside borders are left to the care of those who have not a good knowledge of Grape culture, the chances are that failure would result from an insufficiency of water. I say this advisedly, because I know something of the requirements of an inside Vine border, and I am quite sure that there are many who would think they were doing positive harm if they saw for the first time the quantity of water which established Vines are capable of making use of during the four months in which they are in active growth, and unless suitable provision is made for an abundant supply no Vines should be planted inside the house. When I first dealt with an inside border I was much too niggardly in supplying water; now I lay it on from a tube attached to a supply pipe in the house, and I let it run for eighteen or twenty hours consecutively five or six times between April and July upon a border only 30 ft. long and 10 ft. wide, and the result is all that can be desired. To give a correct idea how much water this border receives in a given time, I may say the pipe discharges about seventy gallons an hour. In the autumn and winter the border receives about nine hours' run of water from the tubing about once in six weeks. These remarks will give the inexperienced some idea of the quantity of water required. I may observe that the Vine border to which I allude is thoroughly well drained, as all Vine borders should be.

I am of opinion that where the roots are all inside the border should be rather deeper than when outside, because the root space is restricted, and, further, the depth of the border should be in proportion to the length of the rafter; for a rafter 16 ft. long the depth of soil should be 2 ft., and where the rafter is 18 ft. to 22 ft. long there should be 3 ft. depth of good soil.

J. C. C.

Birds and buds.—Owing to the mild weather the buds of fruit trees and bushes are unusually large, in fact nearly bursting into bloom, and consequently just in a condition to invite the attacks of birds. A sharp look-out must therefore be kept for bullfinches, tom-tits, and sparrows, for if they once get a footing in an orchard of Cherries or Plums, or a quarter of Gooseberries, it is surprising how quickly even a few will destroy all chance of a crop. Bullfinches may generally be detected at this time of year busy at work on Hawthorn bushes or hedges, and that is the best time to reduce their numbers by means of powder and shot, the only effectual remedy. Dusting with fresh lime is to some extent a safeguard, and string or worsted worked among the branches will keep them at bay, but in a general way shooting, as I have said, is the only sure remedy. Various opinions are held with regard to birds in gardens, i.e., as to whether the good they do overbalances the harm, or *vice versa*, but I think there can be little difference of opinion with regard to the advisability of keeping down the stock of bullfinches,

sparrows, and tits of various kinds. The latter are sometimes very destructive to buds, and, worse still, to the fruit of Apples and Pears, picking near the stalk little holes that induce decay.—J. G., Linton.

Formation of Vine roots.—"Thrumpton" recommends potting two Vines, one in poor soil and the other in rich. He says the result will be that the one in the rich soil will make a few fleshy roots, while the one in the poor soil will make a complete network. Well, I have seen the experiment tried, and the result was exactly the opposite of what he states. The one in the rich soil made a complete mass of fine fibry roots, while the other made but a few fleshy ones. It must surely be a mistake to think that Vine roots will thrive better in poor soil than in rich. There is more food in rich soil than in poor, and Vine roots make vigorous growth when planted in good soil and well treated. The same thing he says happens in Vine borders, but I can offer no opinion upon that point, for I never have seen Vines planted in poor soil. I have seen one-year-old canes planted in a border of good fibry loam mixed with a good quantity of old lime rubbish, broken bones, and charcoal, a compost which gave entire satisfaction. Fibry roots spread over the whole border nearly in masses, and the canes grew 27 ft. or 28 ft. long and 2½ in. in circumference 6 ft. from the ground the first year.—G. ROBE.

Orchards in North Lancashire.—Mr. Waiting states (p. 18) that the Damson grows wild in the vicinity of Grange-over-Sands, but he is mistaken; it is only to be found in cultivated grounds. The Sloe is, however, very plentiful on the surrounding hills and fells. As to old orchard trees, my advice is let them alone, with the exception of removing any dead branches and destroying any Moss or Lichen that may be on them; otherwise destroy the trees altogether. My experience has taught me that old trees cannot endure severe amputation. Pruning, if severe, may produce a larger amount of foliage the year in which it is done, and the operator may fancy he has improved his trees; but wait three or four years, and mark the result. Younger trees, on the contrary, may be operated on with advantage, either in the way of pruning or cutting back and re-grafting. In the above remarks on the impropriety of severely pruning old fruit trees I am not putting forth any peculiar notion of my own; on the contrary, to a certain degree, I have been an unwilling convert to the practice. First impressions are not always correct, and Mr. Waiting may yet see reasons for changing his views regarding this matter.—A GRANGE GARDENER.

Anemone fulgens.—Fancy having this outdoors in flower in the middle of January, and the plants not bearing a stray blossom or two, but a profusion, as from one plant I could this day cut ten blooms, but they are too precious where they are; for, standing in front of a row of Christmas Roses in full blossom, too, they have a striking effect. The two are well worth growing together, and for cutting to associate in the same way, nothing can be finer or more telling, as they afford such a contrast in colour, the one being pure white and the other deep scarlet, and both of much the same form and character. I mean to plant the two, the Christmas Rose and the Anemone, on a border where they can be protected by the use of some old lights, in which way I hope to preserve them from frost and get them in as they now are again. Has anyone had Anemone fulgens in pots, or had it planted out in frames or gentle heat? and if so, with what results? It strikes me it would be valuable grown in either way, but I am doubtful if it will bear forcing. I have had the common kinds sown and the beds covered with frames, and found them to answer remarkably well, and yield a large quantity of flowers for cutting, a purpose for which Anemones are well adapted, as they are not only very dressy, but last a long time in water.—S. D.

JAMES VICK.

THE following sketch concerns the career of one of the most remarkable and well-known horticulturists in the United States, Mr. James Vick, of the city of Rochester, New York State:—

James Vick was born Nov. 23, 1818, within a stone's throw of the house in which Charles Dickens first opened his eyes, and they were both baptised in the same old parish church of Kingston, a suburb of Portsmouth. His father, a mechanic, was a skilful amateur gardener, and the son conceived a great liking for flowers almost from infancy, and attended the Pansy and Carnation and other floral exhibitions at every convenient opportunity, occupying much of his boyhood-time in efforts at flower culture. In 1833, when fifteen years of age, he went to America with his parents. Like many other boys with ambition, and some literary tastes and aspirations, he had an earnest desire to learn printing. An opportunity offered in the latter part of the year, and he commenced setting type by the side of Horace Greeley, who was then a journeyman printer. After working a year or two at the trade in New York, he removed to Rochester and commenced work at printing, cultivating flowers, and writing for the agricultural papers. This brought him into acquaintance with Luther Tucker, who then published the *Genesee Farmer*, and who was glad to give him employment on his paper. Mr. Tucker purchased the *Albany Cultivator*, and united the *Genesee Farmer* with it. But a paper called the *New Genesee Farmer* soon started in the field thus opened. The "New," as we remember, was soon dropped and the paper was published with varied fortunes until 1850, when Mr. Vick was solicited to undertake its publication, which he did, running its circulation to the then unparalleled number of 50,000. Some three years after this Mr. A. J. Downing, who edited the *Horticulturist* published by Luther Tucker, at Albany, was drowned in attempting to save the passengers of the ill-fated steamer "Swallow" which was burnt on the Hudson. Mr. Vick then bought this journal, and published it in Rochester for a number of years, being ably assisted in its editorial management by Mr. P. Barry.

THE SEED BUSINESS.—During the years that he published these journals it had been his custom to import new and choice flower seeds from all parts of the world and give them as presents to his agents and correspondents, and to all who exhibited any interest in his journals; in fact, in all places and ways where he thought he could increase the love of flowers. This seemed to be "his mission." The neighbours of these favoured ones seeing such choice flowers in their gardens, naturally inquired where the seeds came from, and, being informed, would write him to forward just such seeds as "his neighbour received last season," and "send on the bill." Not being in the business, Mr. Vick declined receiving any compensation, but invariably made a graceful present of the seeds desired. Of course, this kind of business grew rapidly on his hands, he giving away annually some \$200 worth of imported seeds, besides large quantities grown by himself. About this time he disposed of the *Horticulturist*. He had made that journal far too good for the times, and could not make it profitable, and publish it as he desired. He then commenced editing the *Rural New Yorker*, just established by Mr. D. D. T. Moore. He then abandoned his Free Seed Business, which had become too large and costly for him to carry it on.

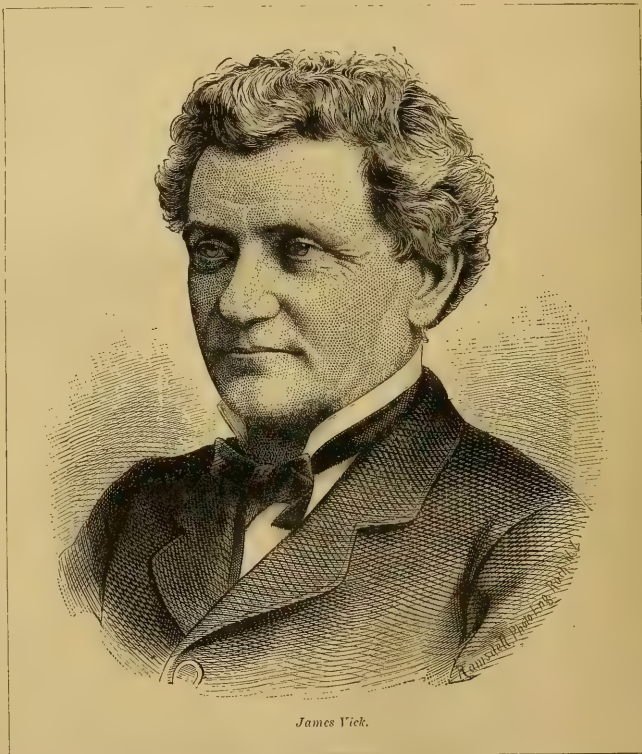
About 1857 Mr. Vick recommenced the seed business in earnest; all that had been done before was merely preliminary advertising—though not intended as such. He was literally driven into it, and from that time to this he has driven it with

an energy, zeal, and judgment which has produced results simply marvellous. Most of the business is done by mail, and with a system and promptness which is almost a perfect surety against mistakes, loss, or delay. From one to three thousand letters a day during the busy season are received and answered, the postage alone amounting to over \$30,000 annually. Two and a half tons of mail matter have been forwarded in a single day. Last year he sent out a quarter of a million copies of his *Floral Guide*. These are sent only to customers, when ordered. Until the present year all this business has been conducted in a rented building in State Street, but he has now completed and moved into an elegant and substantial building in East Avenue.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.
G. J., SURREY.

THE scarlet Passion Flower (*Passiflora racemosa*) makes one of the best decorations for the dinner table used alone with its own leaves. In the centre of the table is a large silver bowl bountifully heaped with the brilliant flowers; some of the long flowering growths, cut 2 ft. in length, fall over and trail on the cloth towards the angles of the table. Four other silver bowls, small and low, each hold about five flowers with leaves. The same arrangement may be varied, though it can hardly be improved, by some fronds of *Adiantum farleyense*. This Passion Flower is also very beau-



James Vick.

It is built of brick, 54 ft. wide, 160 ft. long, and four stories high. He has employed in this building over one hundred experienced and trusty persons, a large proportion of them women. In the building is a printing office, book-binding, post-office, mailing and packing rooms, and every convenience which his long experience has taught him is necessary to the successful prosecution of his business. Mr. Vick oversees everything himself, yet he is never so much hurried as not to be ready to receive visitors with the most cordial affability, and give much of his valuable time to works of benevolence and public good. He is always genial, just, and honourable. His success has been well deserved. He is an honour to the goodly city for which he has done so much to make famous the world over as the "Flower City."—*State Agriculturist*.

tiful in baskets of the cream-coloured Wedgwood known as Leeds ware. A large glass bowl on a drawing-room table holds Christmas Roses, large and long stalked, that have a fine effect with the important looking, red tinted leaves of the two broad-leaved Saxifrages. The leaves of *S. cordifolia* are the handsomer, stiff in texture, with their borders in bold sculpture-like waves; they take the red colour in pools and blotches and in delicate staining of the waved margin; the whole leaf has a movement of surface that makes fine light and shadow. The leaves of *crassifolia* take the red colour more evenly and strongly, but are flatter and less beautiful in form. In cold winter weather they look limp and lifeless and hardly worth cutting, but a night's immersion in cold water will stiffen and revive them. Very pretty as room plants are well grown, bushy little standards of black *Laurustinus* (*Viburnum hirtum*),

with compact heads about 1 ft. through, flowered in the greenhouse. The flowers are smaller than those of the common form, but pure white, and the leaves dark and of good substance.

FLOWER GARDEN.³

W. WILDSMITH, HECKFIELD.

Pruning shrubs.—So far as this part of the country is concerned, better weather for the prosecution of all outdoor work could not be than that which we have had for weeks past, and if the same favourable conditions have been general, much of the rough work connected with alterations and all planting of trees and shrubs will now be finished, or if not, should be so as early as practicable, after which the next most pressing work will be hedge clipping and shrub pruning. All hedges, limes, belts, and screens of Privet, Beech, Holly, Yew, &c., to be kept thick must be cut annually; such work we usually reserve for frosty weather, which may perhaps not be the best for shearing them, but having from necessity done it in such weather for many years without perceiving any ill effects, I can safely recommend it to be done now no matter what the weather is. In the majority of gardens shrub pruning is but a secondary consideration, and in some never attempted at all; consequently Hollies, Laurels, Bays, and all similar habited shrubs soon get naked stemmed, a condition that can only be effectually prevented by timely cutting back the leading shoots, an operation which conduces to lateral extension of growth, and keeps the plants equally furnished with shoots. Moreover, I have an impression that such timely curtailment contributes to longevity, for my surely must have noted the wholesale destruction of unpruned Hollies and Laurels during the past two winters, whilst those that have been kept trimmed are as healthy as ever; hereabouts, at all events, the difference in the two is most marked. That it may not be inferred from the importance here attached to shrub pruning that formal trimming is advocated, I would add that, from my point of view, trees never look handsomer than in their natural forms, the only aid here advocated being simply the restriction of the stronger branchlets to, as it were, aid the weaker to keep pace with them. Many kinds of trees, Conifers in particular, by the pinching out of the point of a strong shoot or shoots, as the case may be, can be made to grow of even proportions throughout. Of course these remarks refer more particularly to young trees; to influence or direct the growth of old-established Conifers is obviously out of the question.

General work.—This now consists in the completion of the turning or re-gravelling of walks to get them well consolidated by frequent rolling whilst the ground is still wet. Verge cutting and levelling of turf are also important works that should be completed as early as possible; as should also new edgings of Box or repairs to the same. Where turf would be in bad taste, not to mention the bother of moving or clipping, *Sedum glaucum* makes an excellent boundary line for walks in rockeries and ferneries, and when planted virtually requires no attention, except to be kept free from weeds. Sweeping and rolling are still a necessity as regards the preservation of neatness, worm casts, owing to the mildness of the weather, being still thrown up in abundance.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

***Æschynanthus* and *Torenia*.**—Such plants as possess a drooping habit of growth are much more suitable for hanging baskets than erect growers. Most of the kinds of *Æschynanthus* are particularly adapted for the purpose, as well as *Torenia asiatica* and *T. pulcherrima*, if as well as either are at once put in they will, as a rule, root quickly, and should then be transferred to the baskets, using a sufficient number of the *Æschynanthus* to make them effective with a single season's growth.

Tuberous-rooted *Begonias*.—A portion of the stock of these may now be started by placing them in a house where they can have an intermediate temperature. These plants are so accommodating that they will succeed in either a hot or greenhouse; still, if grown too warm they make weak growth that produces comparatively few flowers, the plants in addition having an indifferent appearance. They may be shook out of the old soil and at once potted in new. Such of these *Begonias* as are now started in heat will be found very useful to precede the latter portion that will come on with greenhouse treatment. They do best with moderately light soil, fairly enriched with manure and a little leaf-mould.

Caladiums.—Although a few large specimens of these are suitable for use in large houses, still small examples, consisting of a single crown each, are generally preferable. Where large old plants are available they may be divided, retaining a portion of root to each piece. When so treated they must immediately be started in a brisk heat, and should not be placed in soil that is over moist, or they will be liable to decay. The small growing *C. argyrites*, if well managed by keeping it close to the glass, where it will get plenty of light with a moderate amount of air so as to secure stout growth, is one of the most useful stove plants in cultivation, for in such condition it will bear using in a lower temperature along with flowering subjects for some weeks when the weather gets warmer, and the leaves are alike available for cutting to use in bouquets and other combinations of flowers.

Peperomias, Fittonias, and *Panicum* variegatum.—These small growing handsome-leaved plants are alike suitable for cultivation in either large or small houses, adding much to the appearance of the stages when used in quantity so as to act as a setting for larger growers, and where the side stages are composed of slate, stone, or other imperishable material, a carpet of such plants, with a moderate number of other things possessing larger growth stood about on them, produces a much better effect than is attainable by the ordinary arrangement of crowding all sorts of plants indiscriminately together. Where a considerable stock of the above plants are to be used, a sufficient number of cuttings should at once be put in, as by having them rooted thus early the plants will be in a condition to get established early in the season.

***Sonerilias* and *Bertolonias*.**—These pretty handsome-leaved subjects, although not able to bear the rough usage and shade inseparable from use in the way advised for the *Fittonias*, &c., ought to have a place in all collections of stove plants where a good amount of heat is available, without which it is useless attempting their cultivation. They root freely from cuttings which may be put in now, giving them a brisk heat, and keeping them moist and close under propagating glasses.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Pines.—To meet the demand for early fruit, see that the bottom-heat in which the first batch of Queens are plunged does not fall below 80°, and let the top-heat range from 70° at night to 80° through the early part of the day, and 85° to 90° after, closing with sun-heat. Keep the evaporating pans filled with stimulating liquid, pay particular attention to root watering with the same in a diluted form, and reduce the necessity of overhead syringing by damping all available spaces, including the surface of the bed, when the house is closed for the day. If the bed in which winter fruit is swelling shows signs of declining, take advantage of a mild day for renovating it with fresh fermenting leaves or tan, and replunge the plants, keeping the *Cayennes* and *Rothschilds* which started late in October and November together in the lightest and best part of the house, where they can receive heat and moisture with stimu-

lating food, as recommended for the early Queens. If well rooted and not overpotted, these plants will give excellent Pines at a time when good English fruit is in great demand and not too plentiful.

Successions.—Strong plants intended to make a growth before they fruit should be examined, and if found very dry at the root a little tepid water may be given to prevent them from receiving too decided a check, which might cause them to throw up prematurely. In light, airy houses an occasional dewing over with the syringe may also be indulged in, but in close pits atmospheric moisture will be quite sufficient for the present. If the bottom-heat valves have been kept shut through the dead months of November and December, and the heat has declined below 70°, it will be necessary to admit a gentle circulation until the thermometer indicates a move upwards, but great caution must be observed, as the application of water to the fermenting material combined with increasing solar heat often produces the desired effect without having recourse to the hot-water pipes. Gradually increase the top and bottom-heat in pits containing suckers, which require shifting into fruiting pots. Give a little water from time to time to bring the soil into a growing state, and shift as soon as the roots show signs of moving. Meantime push on the usual preliminaries as opportunity offers by getting crocks, pots, and soil ready for use before a single plant is disturbed.

Orchard house.—Owing to the mildness of the season, the buds on Peach and Nectarine trees still standing out-doors have got very forward, and altogether unfit to be exposed to moderate severity should this extraordinary weather be succeeded by frost. In many places the orchard house is used for other purposes in winter, and early housing of the trees is often attended with inconvenience; but steps of some kind should be taken for getting them under glass, as they may be placed closely together for a time, provided the house is fully ventilated at all times, unless frost is very severe. In years gone by it was the practice to pot and top-dress trees quite up to the time of housing, but this remarkable season fully confirms the sound advice to get all work of this kind performed before if possible, or immediately after the fall of the leaf. When all the trees are under glass keep them well supplied with water, as dryness at the root after this date is sure to settle the crop for this season. Also look to trees established in inside borders, mulch well, and give them repeated waterings until the soil is as moist as it will be found in a well-drained Peach border out-of-doors.

Early houses.—After the fruit is all set on the early forced pot trees, syringing must not be neglected to keep insects down and to wash off the remains of the flowers. If fly has gained a footing, fumigate when the trees are dry, and repeat if necessary. Allow a night temperature of 50° to 55°, and 60° to 65° in the daytime, with a slight increase after closing on sunny afternoons. Where the young fruit is too thickly set relieve the trees by removing a few of the small and badly placed ones, and at the same time gradually carry on disbudding and shortening back when the shape of the trees can be improved without detriment to the crop of fruit. Water well with tepid liquid and give the roots a little more fresh top-dressing when they show upon the surface.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

We have been employed during the week digging and manuring quarters left vacant by Brussels Sprouts, Savoy, and early Broccoli, also in salting and lining vacant Celery quarters, in order to get rid of slugs; this land we intend for Spring Onions. We are planting Tripoli Onions from seed beds into rich land, and at this season we plant a large breadth of small Onions for very early use. We are likewise planting early Cauliflowers out of seed beds in cold pits into three-light boxes, in order to make them stocky and strong for planting

out in April and May. Small sowings of Lettuce and Cauliflower may be made at once. Radishes now up should be aired regularly and thinned timely, so that they may grow with little top and good bulbs. Wood's Frame ranks among the best. As the days lengthen all things indoors strengthen. Kidney Beans are looking and bearing like May Beans, and once again I say to all, use Osborn's; it is the king of Beans for forcing. Asparagus we force in old Pine stoves, and with very little trouble. See that old stools are taken out and replaced at once, a remark which also applies to Seakale and Rhubarb. Outside Mushrooms are now bearing well, and the quality far in advance of those indoors. We have finished making beds for this season, and doubtless shall have a full supply until next June.

DUTCH CUT FLOWER TRADE.

MESSRS. KRELAG & SON, Haarlem, have sent us the following in reference to this matter: There have been serious complaints from the English horticultural trade that last year during the flowering period of Hyacinths, Tulips, and other Dutch bulbous and tuberous-rooted plants, the English markets have been overstocked by immense masses of cut flowers of these plants sent from Holland. Thereby the price of English-grown flowers was in many cases so much depreciated, that instead of giving any profit, there was a great loss in this branch of cultivation.

The majority of Dutch bulb growers and exporters have thought it necessary to interfere herewith, and in consequence of this general feeling, on a general meeting of the General Association for the Promotion of Bulb Cultivation at Haarlem (a society which has nearly 500 members in 12 different sections) resolutions have been taken against this branch of trade in cut flowers, because it is considered to damage largely the trade in bulbs. The society wishes to engage every bulb grower or exporter, member or not member of the society, to give a declaration in which is promised, 1st, to send out neither in the interior nor abroad any cut flowers of Hyacinths, Tulips, Narcissi, Anemones, Ranunculuses, or Gladioli, except (a) as samples in cases under five kilogrammes, (b) without charge for exhibition purpose; 2nd, neither to sell nor to give to others, nor to abandon to their disposition any such cut flowers as an article of trade. The signatures to these declarations will be collected through the officers of the sections of the society. It may be expected that this measure will have the desired effect.

Water-tight boots are of great importance to gardeners, and Mr. Smith does good service in calling attention to the matter (p. 18). I do not, however, quite agree with him that no dublin is good for the purpose, as he seems to imply. However, having had occasion to use many compounds, I give the place to mutton fat and beeswax, in the proportion of six to one. A similar composition formed of Russian tallow instead of beeswax is also excellent.—C. D.

Worms in manure.—Allow me to inform "C." (p. 48) that manure always more or less harbours worms. Mix quicklime and soot with it, and turn it over two or three times.—E. H.

Naming plants and fruits.—Four plants, fruits, or flowers only can be named at one time, and this only when good specimens are sent. Readers who desire our help in naming Apples or Pears will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and those only when the above condition is observed. Unpaid parcels not received.

Names of plants.—*S. Nibet*.—*Zygopentum Mackayi*. —*W. M. S.*—Apparently *Catastemon callosum*. —*E. R.*—1, *Cypripedium insigne*; 2, *Davallia caviarinsis*; 3, *Oncidium japonicum*; 4, *Adiantum tenerum*. —*Miss P. (Perth)*. —1, *Polystichum angulare* var.; 2, *Asplenium Trichomanes*. —*Erin*.—1, *Asplenium bulbiferum*; 2 and 3, species of *Mesembryanthemum*; 4, *Tradescantia repens*.

ooks.—I. N. M.—"Notes on Lilies," by Dr. Wallace, Walk, Colchester.

THE CROCUSES.

By G. MAW.

As the genus *Crocus* consists of nearly seventy species, it is a matter of surprise that but three or four only are generally used for horticultural decoration; and these—*Crocus aureus* and *Crocus vernus* and their varieties, and perhaps one or two other species—appear to have been in cultivation at least two or three hundred years. *Crocus aureus*, from Bithynia, Greece, and the south-east of Europe, appears to have been the parent of the well known Dutch yellow, also of sulphureus, lacteus, and several other similar varieties, the origin of which is lost in obscurity. *Crocus vernus*, from the Alps and Italy, was the origin of all the blue, white, and variously striped and shaded varieties which are cultivated so extensively in Holland and Lincolnshire, and varies in its native habitats with the markings and combinations of colour found in the horticultural varieties. *C. versicolor*, from the Maritime Alps and the Riviera, has also been long in cultivation. The Cloth of Silver or Scotch *Crocus* is a large variety of the Italian *C. biflorus*, probably obtained from the south of Italy; the Cloth of Gold, *C. susianus*, was an old importation from the Crimea. *Crocus Imperati*, from South Italy, has been more recently introduced. Of the autumn flowering species, *C. nudiflorus*, from the north of Spain and the Pyrenees, is an old garden plant, and has become naturalised in many parts of the midland counties. *C. speciosus*, from the Caucasus, has also been sparingly grown in English gardens for many years; this completes the list of the generally cultivated species of the genus.

The genus is confined to the Old World in the northern hemisphere, and roughly centres round the Mediterranean and Black Seas. It occurs from 9° west to 50° east longitude. Two species, *C. alatavisus* and *C. Korolkowi*, occur in Central Asia, far to the east of the general area of occurrence; and north and south the genus extends from 31° to 48° north latitude. Two species only, *C. nevadensis* and *C. tingitanus*, occur in North Africa, and are common also to Spain; the remainder are all European or Asiatic. Four or five species have become naturalised in Britain, but none appear to be truly indigenous. All the species are perfectly hardy in our climate, and the majority extend to high ranges of altitude in their native habitats, several being limited to alpine elevations.

As during the past few years nearly the whole of the species of the genus have been introduced and are in cultivation in private collections, we give a complete list of those at present known, based on the plan of Dean Herbert's classification, as adopted and modified by Mr. G. Maw for his forthcoming work on the genus *Crocus*. Herbert separated the genus into two main divisions, termed *Involucrati*, or those with a basal spathe, containing the scape, springing from the summit of the corm, and *Nudiflori*, including the species having no basal spathe. These two main divisions he further subdivided by the character and structure of the corm tunic.

DIVISION I.—INVOLUCRATI.

Species with a basal spathe springing at the base of the scape from the summit of the corm.

Section 1.—Fibro-membranaei, with a corm tunic of membranous tissue interspersed with nearly parallel fibres. —*Autumn flowering*.

1. *C. iridiflorus* (Heuffel). *C. byzantinus* (Parkinson).—A highly ornamental species from the Banat and Transylvania, producing its bright purple flowers before the leaves in September and October; re-

markable for its purple stigma and the marked difference in size of the inner and outer segments of the perianth.

2. *C. vallicola* (Herbert).—A pale straw coloured species from the higher mountains of Asia Minor and the Caucasus, flowering in August and September without the leaves, which are produced in the spring. It has only recently been introduced to cultivation, but promises to be a robust and highly decorative species.

3. *C. Scharojani* (Ruprecht).—A bright orange species from the Caucasus and mountains of Trebizond, producing its flowers from the end of July to the middle of August. It is the earliest autumnal species, and is remarkable for the previous year's leaves being occasionally persistent to the autumnal flowering time. It has only recently been introduced to cultivation. Its bright golden flowers form a striking feature in the early autumn. As it readily produces seed, its multiplication for general decorative purposes may be looked forward to.

4. *C. zonatus* (Gay).—From the mountains of Cilicia, with bright vinous lilac flowers, golden at the base, abundantly produced about the middle of September. It is a highly ornamental and free flowering species easy of culture. The corm is discoid in form, its width being more than double its height. Like the foregoing species, the flowers are produced before the leaves, which do not appear till the spring. It has been in cultivation in private collections about seven or eight years.

5. *C. karduchorum* (Kotschy).—A small lilac species, only known from herbarium specimens collected by Theodore Kotschy in September, 1859, in the mountains between Muklis and Schirwan, in Kurdistan, at an altitude of 6000 ft. The stigmata of this species are pale cream coloured, much divided and spreading into a fan-like mass of capillary divisions. As in the case of *C. Scharojani*, the last year's leaves are persistent till the autumnal flowering time. It has never been introduced to cultivation.

6. *C. nudiflorus* (Smith).—A well known species, a native of the Pyrenees and north of Spain, which has become naturalised at Nottingham and in other localities in the midland counties. Its large bluish purple flowers are produced in September and October before the leaves. Where once established it is difficult to eradicate; the corms produce long stolon-like shoots, which form independent corms on the death of the parent, and by this means the plant soon spreads to considerable distances from where originally planted. The throat of the flower is unbearded.

7. *C. asturicus* (Herbert).—Abounds in the meadows of the Asturias and the mountains of Central Spain; it somewhat resembles *C. nudiflorus*, from which it is readily distinguished by its bearded throat, the appearance of the leaves at the flowering time, and the absence of stolon growths from the corm. It is, like *C. vernus*, extremely variable in colour, from dark purple to pure white, the base of the segments being more distinctly darker than the margins than is the case in *C. nudiflorus*. It flowers from the end of September through October into November, and forms a strikingly beautiful feature in the meadows surrounding Gijón, in the north of Spain.

8. *C. serotinus* (Salisbury).—Closely allied to *C. asturicus*, and a native of the south of Spain, flowering in November, but the leaves are more fully developed at the flowering time than the leaves of *C. asturicus*; its throat is bearded. The outer surface of the perianth segments is also more or less distinctly feathered with darker purple.

9. *C. Salzmanni* (Gay).—A native of the neighbourhood of Tangier and the lesser Atlas Mountains south of Tetuan, occurring also in the south of Spain, closely allied to *C. serotinus*, but it is a species of larger stature, flowering with the leaves in October and November. It is a plant of robust habit and ready of multiplication. As the flowers are liable to injury by frost and snow in our climate, it is best seen to advantage under the protection of a cold frame.

10. *C. Clusi* (Gay).—A native of Portugal, and abundant about Lisbon, Cintra, and Oporto, flowering with the leaves in October. It closely resembles in aspect *C. serotinus*, with which it has often been confounded; but is distinguished from the three foregoing species by its reticulated corm tunic and by having an orange-scarlet instead of a buff seed.

11. *C. ochroleucus* (Boiss. & Blanche).—An abundant species on the flanks of the Lebanon, in Northern Palestine, and the borders of Syria. Its creamy white flowers with orange throat are abundantly produced from the end of October to the end of December. It well repays the protection of a cold frame, which preserves its showy flowers from injury by frost and rain.

12. *C. lazicus* (Boiss.).—An orange species discovered by Boissier in the high mountains of Lazistan. Said to flower in August, contemporaneously with the development of its leaves, but some doubt exists as to whether the discoverer found it in June or in August, and it is questionable whether it should be viewed as a late vernal or an early autumnal species. As in the case of *C. nudiflorus*, it multiplies by stolon growths from the corm. It has not yet been introduced to cultivation.

13. *C. Cambessedesii* (Gay).—A native of the Balearic Islands, flowering in October and November. In cultivation the flowering time is very variable, from September to April. The flowers of this species, appearing with the leaves, are exceptionally short, barely three-quarters of an inch high, pale lilac, the outer surface of the outer segments feathered with purple.

INVOLUCRATI.—*Fibro-membracei*.—Vernal.

14. *C. Imperati* (Tenore).—One of the earliest vernal species, abundant in the district south of Naples, and said to extend into Calabria. A figure of this species was given at p. 242 of Vol. VII. of THE GARDEN, which represents the more common variety. It is, however, very variable in its colour and markings. A self-coloured white variety occurs near Ravello, South Italy, and a single specimen was met with by Mr. F. N. Reid, in the same neighbourhood, in which the normal lilac tint of the flower is exchanged for a clear rose colour. The outer surface of the outer segments is coated with rich buff, suffused with purple featherings. *C. Imperati*, from its robust habit and early flowering time, is one of the most valuable species for spring decoration. It flowers from a fortnight to three weeks before *C. vernus*.

15. *C. suaveolens* (Bertoloni) is closely allied to *C. Imperati*, and a native of the environs of Rome, Terracina, Fundi, and Itri, flowering in February. The flowers are somewhat smaller and the segments more acute than in *C. Imperati*. It is a species of hardy and free flowering habit, and under bright sunshine forms a highly ornamental object in the early spring garden.

16. *C. versicolor* (Gawl.).—A native of the Maritime Alps and the Riviera. It is a well-known species, and has been for many years in cultivation. The flowers present a great variety of colouring, from purple to white, and various kinds of striping and feathering. It differs from the two preceding species in having the whole of the perianth segments similarly coloured, in which the

external buff coating found in *C. Imperati* and *C. suaveolens* is absent. Its flowering time is March.

17. *C. Biliottii* (new species, Maw) is a pretty bright purple vernal species from the mountains south of Trebizond, where it was last year discovered by a native of Kroom, near Stauross, who had been sent by Mr. Biliotti, H.M. consul at Trebizond, to collect for Mr. G. Maw. It has not yet flowered in cultivation. In habit and colouring it closely resembles *C. aërius*, also found in that district, but differs from it in having a basal spathe and fibre-membranous corm tunic without annule.

18. *C. Malyi* (Višiani) was discovered by Herr Maly, of Vienna, in the high mountains above Cattaro, in Dalmatia. The flowers are white, with a bright orange throat. It promises to be a robust and highly ornamental species; the flowers are freely produced in March. It was first cultivated in the Padua Botanical Garden, whence a few corms were obtained by Mr. G. Maw.

19. *C. minimus* (D. C.).—An abundant species on the sea-board of the western coast of Corsica, the neighbouring islets, and in parts of Sardinia; flowering from the end of January to March. The flowers resemble those of *C. Imperati* in miniature, but are smaller and of a darker purple colour, and more heavily suffused with external brown featherings. Its parallel fibred corm coat readily distinguishes it from *C. corsicus*, of the Corsican Mountains, with which it has been until lately confounded, and which has a finely reticulated tunic. Although perfectly hardy, it is not a robust plant capable of use for garden decoration.

20. *C. Boissieri* (new species, Maw) is only known from a single imperfect specimen in the herbarium of Mons. Boissier, collected by Tchihatchef in June, 1853, near the Cave of Corycus (modern Korghoz), in Cilicia. The corm is unknown; the flowers are pure white; the perianth segments exceptionally narrow; and the filament longer in proportion to the length of the anther than in any other species.

INVOLUCRATI, reticulati.—Vernal.

21. *C. corsicus* (Maw, new species).—A pretty vernal species from the mountains of Corsica, ranging from an altitude of 2000 ft. to 6000 ft., and having the general aspect of *C. Imperati*. It has therefore been confounded with *C. minimus*, from which, however, it is readily distinguished by its finely reticulated corm tunic, its paler and larger flowers, its bright scarlet stigmata, which never exceed the anthers, and its pale buff seed. It is a plant of larger stature and more robust habit than *C. minimus*, and well suited for horticultural purposes.

22. *C. étruscurus* (Parlatore).—An ornamental spring-flowering species from the Tuscan Maremma belonging to the group including *C. Imperati* and *C. suaveolens*, which it resembles, but is readily distinguishable from those species by its strongly reticulated corm tunic. It was discovered by the late Professor Parlatore, and for many years was only known by two or three specimens in the Florence Herbarium. It was re-found in the year 1876 by Mr. G. Maw and Mr. S. Sommer in several localities in the Tuscan Maremma, where the country people stated it was not unfrequent.

23. *C. montenegrinus* (Kerner).—A small vernal species from Montenegro, with white segments and orange throat. The anthers bear a curious stigmatic appendage.

24. *C. banaticus* (Heuffel) is a common species in the Banat, Hungary, and Transylvania, where it takes the place of *C. vernus*, to which it is allied. It is a highly ornamental plant; the flowers are of a deep rich purple, occasionally varying with white,

with a darker purple blotch near the end of the segments. The throat is glabrous, by which it is easily distinguished from *C. vernus*. It is cultivated in several Continental and English gardens under the name of *C. veluchensis*, which is, however, another species with a basal spathe and a double proper spathe; the proper spathe of *C. banaticus* is monophyllous. The flowers are produced in February and March.

25. *C. Tommasinianus* (Herbert).—A native of Dalmatia and Servia, flowering in March. It is nearly allied to *C. vernus*, but the throat is glabrous, and the flowers are of a uniform pale sapphire-lavender colour. It is an ornamental and free flowering species, and as it seeds freely in cultivation, it may be expected soon to become a popular garden plant.

26. *C. vernus* (Allioni) was one of the earliest species introduced to cultivation. It is a native of the Alps, Pyrenees, Tyrol, Carpathians, Italy, and Dalmatia, and has been naturalised in several English localities, but is not truly indigenous. It is remarkable for the great range of the colouring of its flowers, the endless varieties from pure white to deep purple being generally intermixed in its native habitats, and correspond with the horticultural varieties which decorate our gardens. The flowers are produced from early in March at low elevations to as late as June and July in the higher Alps. *C. vernus* is the parent of nearly all the purple, white, and striped Crocuses grown in Holland.

INVOLUCRATI, reticulati.—Autumnal.

27. *C. medius* (Balbis).—A purple autumn flowering species, limited to the Riviera and the adjacent spurs of the Maritime Alps. The flowers are produced in October before the leaves, which appear in the following spring, rarely more than two to three to a corm. *C. medius* is a remarkably handsome species; the perianth segments are bright purple, veined at the base; the stigmata bright scarlet and much branched; the corm tunic consists of strongly reticulated fibre.

28. *C. longiflorus* (Rafinesque) is an abundant species in the south of Italy, Sicily, Malta, and neighbouring islands, flowering in October. The flowers are light purple, yellow at the throat, which is unbearded. In general aspect this species somewhat approaches the character of *C. sativus*, especially in the stigmata, which are usually bright scarlet and entire, but occasionally broken up into fine capillary divisions. The stigmata are collected in Sicily from the wild plant for saffron. *C. longiflorus* is readily distinguished from *C. sativus* by its bright yellow bearded throat, its monophyllous proper spathe, its glabrous leaves, which are much shorter at the flowering time than those of *C. sativus*, its more strongly reticulated corm tunic, and its scarlet seed. It is a free flowering and very ornamental species.

The following forms are grouped as varieties of *C. sativus* (29) and of *C. hadriaticus* (30), and compose a well marked section, of which the Saffron, *C. sativus*, may be taken as the type. In the whole of these the leaves are ciliated, appearing with the autumnal flowers; the stigmata are scarlet and entire, the pollen grains are of irregular outline, and variable in size; the throat is bearded, and rarely yellow; the corm tunic consists of fine, silky, reticulated fibre, and the seeds are madder brown in colour.

29. *C. sativus* (Linn.).

Var. 1. Orsini (Parlatore); Italy.

" 2. *Sativus* grecus, or Cartwrightianus; Greece.

" 3. *Cashmerianus*; Cashmere.

" 4. *Haussknechtii*; Kurdistan.

" 5. *Elwesii*; Asia Minor.

" 6. *Pallasii*; Dalmatia and Italy.

The cultivated Saffron, *C. sativus*, is the largest and most ornamental of the group; but none of the forms can be recommended for horticultural decoration in this country on account of their shyness in flowering. The normal colour is bright purple, suffused with darker veins, and nearly all the forms have white varieties. No wild form is precisely identical with the cultivated Saffron, but the common Greek variety resembles it in miniature.

30. *C. hadriaticus* (Herbert).—A native of the Ionian Islands and Albania; flowering from the end of September through October. The flowers are white, varying occasionally with a yellow or a purple throat. The leaves appear with and reach to the level of the flowers at the flowery time. The flowers of *C. hadriaticus* are highly ornamental, and are more freely produced than those of any of the varieties of *C. sativus*, but they are best seen to advantage under the protection of a cold frame, and the species is scarcely to be recommended for open air culture in this country.

DIVISION II. NUDEFLORI.

Species without a basal spathe.

Reticulati.—Autumnal.

31. *C. cancellatus* (Herbert).—A widely distributed eastern autumnal species, extending from the Ionian Isles to Syria; varying much in the colouring of the flowers, from white to pale bluish purple, which are generally veined or feathered towards the base of the segments. The flowers appear without the leaves, which succeed in the spring. The corm tunic consists of strong fibre, arranged in oblong reticulations. The flowering time of *C. cancellatus* is from the end of October to December. It is a robust species, easy of culture, but like many other late autumnal species it is best seen to advantage under the protection of a cold frame. *C. cancellatus* is known under a variety of names, viz., *C. Schimperii*, *C. Sprunerii*, *C. cilicicus*, and *C. damascenus*. The western forms are nearly white, and those occurring in the east of the area of distribution either blue or purple; but the differences of colour are not sufficient to distinguish them as species.

Reticulati.—Vernal.

32. *C. veluchensis* (Herbert), *C. balcanensis* (Janka), (not *Crocus thessalus* of Boiss. and Spruner, which is *C. Sieberi*), a vernal lilac species, from the Balkans and higher mountains of Greece, which has not yet been introduced to cultivation, though another species, *C. banaticus*, is grown in several English and Continental gardens under the name of *veluchensis*. *C. veluchensis* is distinguished from *C. banaticus* and *C. vernus* by having a diphyllous proper spathe, and from *C. Sieberi* by the absence of orange in the throat. There is no other species with which it is likely to be confounded. In its native habitats the flowers appear in May.

33. *C. Sieberi* (Gay); *C. nivalis* (Bory and Chaub.).—A common vernal species in the mountains of Greece and the Greek Archipelago. The flower is usually bright lilac, orange at the base, but the form found in Crete and the Cyclades presents a great variety of colouring, from white to purple, and these colours are mottled, intermixed, and striped in endless variety, contrasting with the bright orange throat. The Cretan variety, first introduced to English gardens by Mr. Elwes, is a plant of exceptional beauty. It flowers in cultivation from the end of February to the middle of March.

34. *C. dalmaticus* (Visiani).—An abundant species in the mountains of Dalmatia, allied to *C. reticulatus*, but a plant of much more robust habit. The flowers are generally self-coloured lilac, and are freely produced in the open border early in March. It must not be confounded with Herbert's *C.*

dalmaticus, which is an autumnal species, or with the Dalmatian forms of *C. vernus* and *C. biflorus*, which have had this name applied to them.

35. *C. reticulatus* (M. Bieb.); *C. variegatus* (Hoppe and Hornsch).—An elegant vernal species, varying from white to lilac, the external surface of the outer segments distinctly feathered with rich purple markings. The corm tunic is composed of strong, wiry, reticulated fibre. The flowers are produced early in March in its native habitats. It is an abundant plant on the limestone plateaux above Trieste, which is its most western habitat. It is also found in Ucraina, Podolia, Servia, Hungary, Macedonia, Bulgaria, and the Crimea, and extends as far east as the Caucasus. It is a species of delicate constitution, for which reason it is scarcely to be recommended as a decorative plant.

Flowers orange.

36. *C. susianus* (Ker).—The well-known Cloth of Gold *Crocus* was an early importation from the Crimea. It is allied to *C. reticulatus*, and was associated by Herbert as a variety of that species; few botanists would, however, now acknowledge their specific identity. Though the differences of colour, the orange and bronzed *susianus* is readily distinguished from the lilac *C. reticulatus* by its much longer stigmata, the style dividing near the throat, by its red seed, and ciliated leaves. The perianth segments are also reflexed, which does not occur in any other wild species. It is one of the earliest vernal *Crocuses*, flowering in the open border in February.

37. *C. stellaris* (Sabine).—An old garden plant, somewhat resembling *C. susianus*. The flower is orange, distinctly feathered with bronze on the outer coat of the outer segments. It is sterile, never producing seed. The corm tunic is somewhat reticulated, and is intermediate in character between the tunics of *C. aureus* and *C. susianus*. This has suggested to Baker and other writers that it may be a hybrid between these species; but as no authenticated *Crocus* hybrid is known, the origin of *C. stellaris*, of which no record exists, must remain uncertain, especially as it is not known to have been found in any wild habitat. It flowers early in March.

38. *C. ancycrisis* (Herbert, as a var. of *C. reticulatus*) is a species allied to *C. susianus*, but has smaller self-coloured orange flowers without the bronzed markings of *C. susianus*. It occupies a different geographical district, and occurs abundantly in the neighbourhood of Angora and other parts of Central Asia Minor. It flowers under cultivation in February. As it has been only recently introduced, its qualities as a garden plant have not yet been ascertained.

39. *C. gargaricus* (Herbert); *C. Thirceanus* (K. Koch).—An early vernal orange species from the Bithynian Olympus and the Troad, occurring at elevations of from 3000 ft. to 4000 ft., where it flowers in April and early in May. The corm is exceptionally small, not much larger than a pea, and it is doubtful whether the species is sufficiently robust in constitution to be useful for decorative purposes. Under the protection of a cold frame it flowers freely in March.

Flowers white or lilac.

40. *C. Gaillardotii* (Boiss. and Blanche); *C. aleppicus* (Baker).—A very small lilac *Crocus*, flowering in midwinter and the early spring on the limestone plateaux of Syria and Northern Palestine. It has been lately introduced, but has not yet flowered in this country; the flower is scarcely more than half-an-inch in height. It does not promise to be of any horticultural value, and will probably require the protection of glass to enable the flowers to be properly developed at its early flowering time. It is allied to *C.*

hyemalis, of Southern Palestine, but the flowers are smaller, and the corm tunic consists of reticulated fibre instead of membranous tissue.

41. *C. carpetanus* (Boiss. & Reuter).—A native of the mountains of Central Spain and Portugal, with pale lavender coloured flowers, produced from the end of March to May. The leaf structure is different to that of any other species, inasmuch as the keel found in all other *Crocuses* is absent, and the semi-cylindrical back of the leaf is uniformly ribbed and furrowed with about sixteen narrow channels. The corm tunic consists of fine reticulated fibre, resembling tow in appearance. It flowers freely in cultivation, but it is not so ornamental as many other vernal species.

Fibro-membranacei.—Vernal.

Flowers lilac or white.

42. *C. nevadensis* (Amo and Campo); *C. atlanticus* (Pomel).—Is remarkable as being one of the only two species common to Europe and Africa. It occurs at elevations of from 5000 ft. to 6000 ft. in the Sierra Nevada and other South Spanish mountains, and also in many localities in Western Algeria. The leaves somewhat resemble those of *C. carpetanus*, but have a distinct keel, which is, however, ribbed and furrowed like that of *C. carpetanus*. It is an early species, flowering from the middle of January to the middle of February; the flowers are pale lilac, externally marked with a few purple lines. It has been flowered in the open border in this country, but is not a free bloomer or a species likely to be attractive for horticultural purposes.

43. *C. hyemalis* (Boiss. and Blanche).—An abundant species in Southern Palestine, and reaches further south than any other known species of *Crocus*. The flowers produced in mid-winter are white, with a few external purple lines towards the base. It has recently been introduced to cultivation, and is an attractive and ornamental species, but it will probably require the protection of glass to enable its flowers to be properly developed in our climate in mid-winter. The corm tunic consists of thin glossy brown membrane.

44. *C. hermoneus* (Kotschy).—A species from the summit of Mount Hermon, only known from herbarium specimens gathered by Kotschy at an altitude of 9000 ft. The flower is unknown; the corm is exceptionally long for its width and pyriform; the tunic consists of brown membrane, and somewhat resembles that of *C. hyemalis*. It is probably a vernal species.

45. *C. alatavisus* (Regel and Semenov).—The discovery of this species in the Ala Tau Mountains in Central Asia, in longitude 80° east, and latitude 54° north, extended the range of the genus 30° to the east, and 5° to the north of any species previously known. Through the liberality of Dr. Regel, it has been introduced to many collections in this country and the Continent. The perianth segments are white, yellow towards the throat, the outer surface of the outer segments being freckled with rich purple. It is a free flowering species, but from its early flowering time, January and February, it can only be grown to advantage under the protection of a cold frame. A white variety without the external purple freckling is not uncommon. The leaves are narrow, and produced, eight or ten to a corm, at the flowering time in the early spring. Figures of two varieties of this species will be found on the plate published with No. 364 of Vol. XIV. of *The Garden*, November 9, 1878.

Fibro-membranacei.—Autumnal.

Flowers lilac or white. The five following species have pale anthers and capillary stigmata, and form a natural group to which there are no other species nearly allied.

46. *C. caspius* (Fischer and Meyer).—A white autumnal species, from the southern

and western shores of the Caspian, flowering in October, the leaves appearing with the flowers. It occurs more to the east than any other *Crocus*, excepting the two central Asiatic species. It is closely allied to *C. Boryi* of the Ionian Islands, but its entire spreading yellow stigmata readily distinguish it; the corn tunic consists of soft membrane interspersed with fine fibre. It has never been introduced to cultivation.

47. *C. Tournefortii* (Gay); *C. Orphanidis* (Hooker); *C. phlegandrus* (Orphanides).—A lilac autumnal species from the Cyclades and Mœrea; flowering in November with the leaves developed. The anthers are white and stigmata orange, produced into a spreading mass of capillary divisions; the corn tunic consists of soft fibro-membrane. Its late flowering time is against its open air culture in this country, but under the protection of a cold frame it flowers freely in the late autumn.

47b. *C. Boryi* (Gay).—A species closely related to *C. Tournefortii*, a native of the Ionian Islands and the Mœrea. The flowers are white, bright orange at the throat; anthers white, stigmata orange, spreading into a bunch of capillary divisions; the tunic consists of soft fibro-membranous tissue. It is an abundant species at Corfu and in the neighbourhood of Patras, flowering in October, but it does not flower freely in cultivation, requiring the protection of glass for the proper development of its flowers. *Crocus marathensis* of Heldreich appears to be a variety of this species, with short stigmata which scarcely exceed the anthers.

48. *C. vœneris* (Tapeiner); *C. cretensis* (Kornicke).—A species from Cyprus and Crete, closely allied to *C. Boryi*, but of much smaller stature. It flowers in November in the neighbourhood of Paphos, on the south-west coast of Cyprus. It has not yet been introduced to cultivation.

49. *C. lævigatus* (Bory and Chaub).—A species from the mountains of Greece and the Cyclades, which has been confounded by many authors and collectors with *C. Boryi* and *C. Tournefortii*, but is readily distinguished from them by its hard coriaceous corn tunic, its erect stigmata, and the segments of the perianth, which vary from white to lilac, being distinctly feathered with purple markings. Its usual flowering time is from the end of October to Christmas, and in cultivation through the winter up to March. It does not freely flower in cultivation, and, like the other allied species, it is best seen to advantage under the protection of a cold frame.

Parallello-fibrosi.—Vernal. With yellow or white flowers.

The four following species are closely allied and form a natural group. They have all finely divided capillary stigmata, oblong bright crimson seeds, with a glabrous shining surface, and yellow flowers produced in the winter and early spring.

50. *C. vitellinus* (Wahl); *C. syriacus*. (Boiss. and Blanche).—A native of Palestine and Syria, flowering with the leaves, from the end of November to the end of January; the flowers are either self-coloured orange, or externally feathered with bronze markings. It is a hardy, frost-flowering species, but the flowers are liable to injury by frost and rain in the open border, and, as in the case of many other winter flowering species, the protection of a cold frame is desirable.

51. *C. Balanœ* (Gay).—A species allied to *C. vitellinus*, from the neighbourhood of Smyrna; flowering in March—at least two months later than the Syrian plant. The leaves are much broader, and the outer surface of the outer segments are either evenly suffused with rich bronze, or distinctly feathered with bronze markings. It is a hardy, robust species, and, from its later flowering

time, is better suited for open air cultivation than the allied species from Syria.

52. *C. Suterianus* (Herbert).—An orange early vernal species, from the neighbourhood of Angora, Nicœa, and other parts of Asia Minor, which has only been recently introduced to cultivation. It is allied to the Greek *C. Olivieri*, but the leaves are much narrower. The stigmata of this and the following species are less divided than those of *C. vitellinus* and *C. Balanœ*. It appears to be a plant of robust habit, and will probably be suitable for open air cultivation. It flowers in March and April.

53. *C. Olivieri* (Gay).—An orange vernal species from the mountains of Greece and some of the islands of the Archipelago. It has been many years in cultivation and thrives in the open border. Its exceptionally broad leaves distinguish it from any other orange species, and its divided capillary stigmata distinguish it from *C. aureus*, which it resembles in aspect, though smaller.

54. *C. candidus* (Clarke).—A native of the Troad, discovered by Dr. Clarke in 1806, and subsequently found by Dr. Kirk in the same district. It has been erroneously identified by Mons. Boissier with *C. Fleischeri*. *C. candidus* is closely allied to *C. aureus*, but the flower is white, or externally feathered with purple, and the stigmata, instead of being entire, are divided into capillary segments, similarly to the stigmata of *C. Olivieri*. It has not yet been introduced to cultivation. The corn tunic is scarcely distinguishable from that of *C. aureus*, and in other points the aspect of the two species is very similar.

55. *C. aureus* (Sibthorpe and Smith); *C. massicus* (Ker); *C. lagensiorius* (Howarth, Herbert, and Sabine).—Is a native of the Banat, Transylvania, European Turkey, Greece, and Western Bithynia, generally occurring at low elevations, flowering in February. It was one of the first species introduced to cultivation, and the parent of our yellow garden or Dutch yellow *Crocus*, and of a number of old horticultural varieties; lacteus, sulphureus, sulphureus pallidus, sulphureus striatus, &c., the history of which is unknown; they are not known in a wild state, and are all sterile. The wild plant varies considerably, from unstriped orange to varieties striped with grey lines, like those occurring in the Dutch yellow *Crocus*. The stigmata are short, unbranched, pale yellow, much shorter than the anthers; in the Transylvanian plant the stigmata are occasionally orange. The anthers are wedge shaped, tapering towards the point, and not divergent. *C. aureus*, the unstriped form, produces seed readily in cultivation, but the striped Dutch yellow is always sterile, though effete capsules are occasionally formed. The corn tunic is strongly membranous, splitting up into flat fibroid divisions.

56. *C. Korolkowi*, new species (Regel and Maw), is generally distributed between 40° and 45° north lat. and 67° and 71° east long., around Samarcand and in Western Turkestan. Its occurrence so far east is of great interest, as no orange *Crocus* has before been found east of the borders of the Black Sea, distant 1300 miles west of Samarcand; and its habitat is intermediate between the West Caspian district and the Ala Tau Mountains, in Central Asia, the home of *C. alatavicus*. *C. Korolkowi* somewhat resembles *C. aureus*, but is altogether a smaller species, the segments of the perianth being scarcely an inch long. The outer surface of the outer segments are suffused with brown, the leaves, of which from eight to twelve are produced to a corn, are also much narrower than the leaves of *C. aureus*. The corn tunic consists of membranous tissue interspersed with true fibres. *C. Korolkowi* is not yet in cultivation,

but doubtless the untiring energy of Dr. de Regel, who has introduced so many bulbous plants from Central Asia, will ere long add this interesting species to the almost complete series of *Crocus* now in cultivation.

Annulati.

Basal tunic of corn separating into annuli.

Vernal species; the leaves appearing with the flowers.

57. *C. cyprius* (Boiss. and Kotschy).—A small vernal lilac species, with flowers barely an inch high, peculiar to the island of Cyprus, occurring near the village of Prodromos, above the wooded region of the Cyprian Olympus at an altitude of 5000 ft. *C. cyprius*, with its soft membranous corn tunic, forms a connecting link between the fibro-membranous and annulate series. The bright scarlet filament is peculiar to the species. It has not yet been introduced to cultivation.

58. *C. aërius* (Herbert).—A lilac vernal species from the mountains of Bithynia, Lazistan, and Armenia, found at altitudes of from 4000 ft. to 7000 ft., flowering in May. The perianth segments are barely an inch in length, bright bluish lilac, variously marked with purple featherings, or blotched with purple towards the base. It is more nearly allied to *C. biflorus* than to any other species, but the rich purple flower and red seed of *C. aërius* readily distinguish it. It flowers in March and April in cultivation, and a month later at high elevations in its native habitats.

59. *C. biflorus* (Miller), *C. pusillus* (Tenore).

Var. 1, *estriatus* (Herbert); Florence.

" 2, *Weldeni* (Gay); Trieste and Dalmatia.

" 3, *nubigenus* (Herbert); Asia Minor. Sub-variety, *Pestalozze* (Boiss.); Constantinople.

" 4, *Adami* (Gay); Caucasus, Crimea and Georgia.

C. biflorus has a greater range than any other species, extending through 38° of longitude from Tuscany into Georgia. It is the only annulate species that occurs west of the Adriatic. The Scotch, or Cloth of Silver *Crocus*, is a large variety of the typical form of the species, which is abundant throughout a large portion of Italy. The segments vary from white to a pale lavender, the outer surface of the outer segments being distinctly feathered with purple markings. In the var. *estriatus*, from Florence, the segments are of a uniform pale lavender tint, orange towards the base. In var. *Weldeni*, from Trieste and Dalmatia, the outer segments are externally freckled with bright purple. *C. nubigenus* is a very small variety from Asia Minor, in which the outer segments are suffused and freckled with brown; *C. Pestalozze* is an albino of this variety. In *C. Adami*, from the Caucasus, the segments are pale purple, with self-coloured or externally feathered with dark purple. A species with so wide a geographical range includes a great variety of flower-colouring, but the specific characters do not otherwise vary, though the albinos of *C. biflorus* are not easily distinguishable from those of *C. chrysanthus*.

C. biflorus is an early flowering spring species, and a highly ornamental plant for border decoration. The seed is buff in colour.

60. *C. Crewei* (Hooker), *C. melantherus* (Boiss. ?).—A small vernal species, closely allied to *C. biflorus*, discovered by Mr. Elwes in the island of Syria, and first flowered in cultivation by the Rev. H. H. Crewe. The perianth segments are white, the outer surface of the outer segments being finely feathered with purple; the throat is bright orange. The anthers are dark chocolate in colour, which readily distinguishes the species from *C. biflorus*. It flowers in cultivation about the first week in February.

61. *C. tauri*, new species (Maw).—Collected by Aucher-Eloy (exsic No. 2654) in Cilicia, and by Mr. Elwes in Lycia, but only known from herbarium specimens. It is a species of much larger stature than *C. biflorus*. The flowers are of a uniform bright purple, the stigmata are yellow and entire, and are much shorter than in *C. biflorus*, scarcely reaching to the level of the middle of the anthers. The corm tunic consists of coriaceous membrane, which is, however, softer in texture than the tunic of *C. biflorus*, and somewhat resembling the tunic of *C. speciosus*. The basal tunic consists of thick membranous annule, the outer circumference of which is surrounded by about a dozen projecting points. It is a plant which, from its robust habit and showy flowers, would be desirable to introduce to cultivation.

62. *C. chrysanthus* (Herbert).

Var. 1, *fusco-tinctus* (Baker); mountains of Smyrna.

„ 2, *fusco-lineatus* (Baker), do.

„ 3, *albidus* (Maw); Bithynian Olympus and Yamanlak Dag.

„ 4, *ceruleus* (Maw); Bithynian Olympus.

An annulate vernal Crocus, abundant in Western Bithynia, Greece, Macedonia, Thrace, and Roumelia, flowering from January to March, according to its range of elevation, which is considerable, occurring from a little above the sea-level to an altitude of 3000 ft. or 4000 ft. The flowers are smaller than those of *C. aureus*, usually bright orange, but occasionally bronzed and feathered externally. A white variety is also found in Bithynia and on Mount Olympus above Broussa, where it also varies with pale sulphur coloured flowers, occasionally suffused with blue towards the ends of the segments, dying out towards the orange throat. Mr. Elwes was the first since the time of Dean Herbert to introduce this handsome species to English gardens. It flowers freely in March in the open border. The stigmata, which are entire and orange-scarlet in colour, are very variable in length, sometimes much exceeding or falling short of the anthers. The corm tunic is annulate, and resembles that of *C. biflorus*.

63. *C. Danfordiae*, new species (Maw).

—A very small lemon-coloured species, allied to *C. chrysanthus*, discovered by Mrs. Danford in the Taurus, and also occurring at Sivas and other places in Eastern Asia Minor. The stigmata are much shorter than those of *C. chrysanthus*. It has been flowered by Mr. G. Maw at Benthall.

Annulati (continued).—Autumnal; the flowers appearing without leaves, the stigmata multifid, and the sheathing leaves exceeding and hiding the proper spathes.

64. *C. speciosus* (M. Bieb.).—One of the handsomest of the autumn Crocuses, flowering at the end of September and early in October. It has a wide geographical range, extending from North Persia, through Georgia, the Caucasus, and the Crimea into Hungary. The perianth segments, 2 in. high, are of a rich bluish purple, suffused with darker purple veins, with which the bright orange, much divided stigmata form a beautiful contrast. The throat is unbearded; the corm tunic consists of brown membrane; the basal tunic is a membranous disc, succeeded upwards by one or two broad membranous annule. *C. speciosus* has been long in cultivation, and readily multiplies by the means of small bulbs produced at the base of the corm.

65. *C. pulchellus* (Herbert).—Another autumnal species, common on the shores of the Bosphorus, and the neighbouring mountains of Bithynia, invaluable for decorative purposes. The flowers are of a pale lavender colour, with a bright yellow throat, freely produced from the middle of September to

early in December. It is a species readily multiplied from seed. The corm tunic is strongly coriaceous, with two or three annule at its base, and resembles that of *C. biflorus*.

Intersecti.

Corm tunic of platted or stranded fibres; vernal, the leaves appearing with the flowers.

66. *C. Fleischeri* (Gay).—A vernal species common on the Hippurite limestone near Smyrna, and also a native of Cilicia. The perianth segments are extremely narrow and acute, pure white, bearing a few purple lines externally; the corm is of a golden yellow, multiplying by bulbs at its base; the tunic consists of fine yellowish brown fibres, arranged in vertical strands as though platted; the stigmata much exceed the anthers, and are finely divided into brick-red capillary divisions; the leaves are very narrow. *C. Fleischeri* succeeds well under the protection of a cold frame, but is a plant of fragile habit, scarcely suitable for open-air cultivation in this country.

67. *C. parviflorus* (Baker).—The smallest known species of the genus was discovered by Mrs. Danford in the spring of 1877, in Fir woods, at an altitude of about 4000 ft., near the village of Anascha, in the Taurus. The perianth segments are of a uniform lilac colour, ovato-lanceolate in form, and barely $\frac{1}{2}$ inch long. The style, dividing at the base of the anthers, is shortly produced into entire, subulate, spreading stigmata, reaching to the level of the middle of the anthers. The corm tunic consists of stranded fibres, resembling that of *C. Fleischeri*. *C. parviflorus* has not been introduced to cultivation, and is only known from two dried specimens preserved in the Kew Herbarium.

The above enumeration includes the whole of the species of Croci at present known, with the exception of two or three collected by Mrs. Danford in the Taurus, the bulbs of which have not yet flowered in this country. As every expedition to Eastern Asia Minor brings some new species to light, many more may be looked for from a district but little explored. We may also hope for new discoveries in Central Asia, as it is improbable that the two species, *C. alaticus* and *C. Korolkowi*, from that remote region stand alone; and we may reasonably expect that other species will be discovered in that vast intervening area between Samarcand and the Caspian, which is at present botanically unexplored.

We give a full enumeration of the present known species of Crocus, of which so few have been heretofore cultivated, because a large proportion seem to be available for horticultural purposes. Crocuses, both vernal and autumnal, flower at a time when every flower is of value; and we do not doubt that ere long the little known species of the genus which have been recently introduced will add largely to our means of garden decoration during the dull months from late autumn to early spring.

CULTURAL DIRECTIONS for a genus so well known and so easily grown seem almost superfluous; but there are a few points to which it may be convenient to refer in dealing with the Croci as decorative plants. Taking the whole genus of about seventy species, they must be viewed as in continuous succession, from the beginning of August till April; and of these it is only the earlier autumnal, or the distinctly vernal species that can be relied upon in our climate for open air garden decoration. Although all are hardy, and most of the winter flowering species will flower in the open ground, those that flower in November, December, and January are so liable to injury by frost and rain, that they are practically worthless as decorative plants for the open garden.

For such, as well as for the less robust and less floriferous species, the protection of a brick pit is necessary. The bottom of this should be well below the level of the ground,

and it should be filled up with about 1 ft. in depth of fine river silt or sandy loam, the surface of which should be a little below the level of the surface of the ground adjacent to the pit. Proper drainage is essential, but this being attained, Crocuses during their period of growth delight in a uniformly moist subsoil. It is convenient to separate each species by strips of slate or tiles, which may be buried below the surface, and the corms planted about 3 in. deep. A mulching of rotted Cocoa-nut fibre or finely sifted peat keeps the surface uniformly moist, and prevents the substratum of loam from clogging or caking on the surface. At the time of the maturity of the foliage, which generally takes place about the end of May, water should be withheld, and the Crocus bed covered up and allowed to get quite dry, till the end of July, when a copious watering may be given, or the pit exposed to natural rainfall. Crocuses are easily multiplied by seed, which should be sown as soon as ripe in July, though germination will not take place till the natural growing period of the species. Seedlings take from two to three years to arrive at maturity, and should be left for the first two years undisturbed in the seed bed, and then taken up and replanted.

Of the earlier autumnal species suitable for the open border the following may be enumerated for successional flowering:—

C. Scharojani, orange; early in August.

„ *vallicola*, straw coloured; late in August and early in September.

„ *nudiflorus*, blue; September.

„ *pulchellus*, lilac; Sept. and Oct.

„ *speciosus*, blue; Sept. and Oct.

„ *iridiflorus*, blue; Sept. and Oct.

„ *Salzmanni* } lilac or blue; October

„ *asturicus* } and November.

„ *Clusi*

„ *cancellatus*

„ *Cambessidii* } in the early autumn.

„ *hadriaticus*

These are succeeded by a long series of late autumnal, winter, and early vernal species, which are best grown to advantage under the protection of a brick pit.

Of the vernal species suitable for the border, the earliest is *C. Imperati*, flowering in February, followed by

C. sasanus, or Cloth of Gold, in February.

„ *biflorus*

„ *costicus*

„ *etruscus*

„ *suaveolens*

„ *versicolor*

„ *vernus*

„ *Tommasinianus*

„ *dalmaticus*

„ *banaticus*

„ Sieberi and var. *versicolor*

„ *chrysanthus*

„ *aureus*

„ *sulphureus*

„ *sulphureus pallidus* and

„ *striatus*

„ *stellaris*

„ *Olivieri*

„ *minimus*

„ *Balanse*

Of the Croci but recently introduced, many more of the vernal species will probably be found suitable for spring garden decoration, but in the above lists we give those only which are more generally known and easily obtainable.

Holland, with its rich, light, alluvial soil, and Lincolnshire, with its "Trent warp," have been for many generations the sources from which the English market has been supplied with the varieties of the three or four species grown in English gardens. The last five or six years have put us in possession of nearly the whole of the known species of the genus, and we must commend them to the care of the Dutch and Lincolnshire bulb growers wherewith to further enrich our collections.

Flowering from the end of February to the first week in April.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

WINTER-SCENTED PLANTS.

Is it generally known how sweet the common Woodruff is in winter? Last year's growth is now a discoloured tangle, but every time I pass a bank of it I am surprised by the powerful fragrance emitted by it; and even a few bits planted last year at the back of some rockwork give pleasant notice of their presence. The smell is exactly that of a freshly-picked handful in early summer. Beds of Violets in mild winter weather give off a strong scent; it seems to be from the leaves and whole plant, as it is a little different from, though nearly related to, the smell of the flowers; it has about the same degree of relation that the sweetness of bruised Primrose plants and roots has to that of their flowers. But the most powerful and delightful of all the spontaneously-given winter scents is that of the dying Strawberry leaves. Is it a fact or only popular fallacy that some people cannot smell it? It is so strong—almost pungent—that it seems incredible that it should escape any person whose sense of smell is normally developed. From the middle of September, when the leaves turn red, to the end of November it is strongest—a strangely delightful sweetness. It is more given off by the alpine and wild kinds than the garden varieties, or it may be that the latter, having their large outer leaves trimmed away early in the autumn, do not have a chance of showing what they might do. A sweet smell, very much like it, may sometimes, but more rarely, be perceived in passing any place where grow widespread masses of the Great St. John's Wort; it is more faint and delicate, but so nearly like, that it might well be taken for the "excellent cordial smell," as Bacon calls it, of the dying Strawberry leaves. The strange thing about these winter perfumes is that one cannot have them at will; no result can be got by any amount of sniffing at the plants, except in the case of Violets. In Strawberry leaves it is strangely capricious; one may smell it once, and then pass directly by the same place a dozen times and perceive nothing; then come back in an hour and smell it again. The St. John's Wort is still more niggardly; whereas the winter sweetness of Woodruff may nearly always be perceived in passing near, though not by smelling at the plant, unless it be bruised or handled. Surely this good quality makes it worth planting largely by the sides of wood and shrubbery walks, while its early summer beauty needs no recommendation.

G. J.

ROSE FENCES AS BLINDS.

"W. S. T." (p. 55) cannot do better than shut out his woodstock and other unsightly objects with a screen of Roses. I fear, however, that China Roses, even though crowned and sweetened with festoons of Honeysuckle, would not prove tall or strong enough for blinds; a similar objection applies to Sweet Briar. Such Roses as the stronger growing Noisettes and Ayrshires, Gloire de Dijon, Gloire des Rosomanes, Blaire No. 2, Coupe de Hebe, Charles Lawson, and if the situation prove favourable, Marechal Niel, Lamarque, and Triomphe de Rennes may be used. The crimson Boursault, Dundee Rambler, Queen of the Belgians, Ruga, The Garland, and Splendens are among the best of the real climbing Roses. Félicité Perpetuelle, Reine de Franceise, and Williams' Evergreen are among the best of those that keep their leaves in winter. These, with a mixture of the best Clematis, especially a liberal addition of that most useful of them all for this

purpose, C. Flammula, and plenty of Honeysuckles, will speedily form a hedge of sufficient height and sufficiently dense for your correspondent's purpose.

The best way of proceeding is to trench the ground up to a depth of 3 ft. and a width of 6 ft. or 9 ft., if practicable. Should the soil be pretty good, add about a fourth part of manure to it; should it prove poor, add one half of clay or sand, remove at least one-half of it bodily, and replace it with good turfy loam, mixing the old and the new thoroughly, and both with the manure. Should the ground be wet, run a drain along the base of the hedge, about 1 ft. or more deeper than the trench, for the hedge will either not grow on a wet bottom, or if it should it would speedily assume a yellow or jaundiced appearance, and would prove almost worse than no screen at all. Having thus provided some good food for the Roses to grow in, the next step is to give them something to run up or keep them in position. The hedge is meant to be rough, uneven, not formal; thus it will be needful to keep it at something like a uniform height, and of sufficient thickness to act as a blind. For this purpose there is nothing better than a row of young Larch trees, peeled or unpeeled, ranging from 10 ft. to 15 ft. high, and with part of their branches, ranging from 6 in. to 3 ft., left on in the form of snags. Place a row of these firmly along the centre of the hedge, and plant the tallest growing Roses and other plants in the centre, and the more dwarf and dense ones towards the sides. The hedge may be planted in three rows or one—three would be preferable, and the blind would be the sooner formed. Beyond tying the plants to this row of tree stakes, and inclining the Clematis, Honeysuckle, and more slender Roses in the same direction, no further tying or training would be needful. The plants would speedily run into each other and form a dense tangled maze of beauty—a screen impenetrable to sight and smell, and a thing of unique grace and loveliness in itself, as far removed as possible from the all too common screen or hedge, models of stiffness and formality so often met with.

D. T. F.

EARLY ROSE HARVESTS.

ROSES are still in bloom in the open air. I gathered the other day a good bud of La France three quarters open from a standard, and several more of this and other Roses are hastening to open in response to the weather that compels the birds to sing and build their nests in January. Should this summer-like weather last much longer, it will be impossible to prophesy what will become of the Roses and Rose societies. What a slaughter of the innocents and rearrangement of dates there is likely to be! And who shall tell us when to prune when the young Rose shoots are 3 in., 4 in., or 6 in. long in January, and the heads of all our Roses are crowned with bursting buds? It seems almost as if our glorious fine Roses were to be sacrificed to a crop of green buds and tender growing shoots in the first month of the year. The loss of future force by this previous growth must be tremendous, and it almost seems that, having lost thousands of Roses during the past few years through the arctic-like severity of our past winters, we are now in danger of losing tens of thousands through the summer-like mildness of the winter. Or can it be possible that the time of Roses is about to be accelerated by a couple of months or so? Rose shows in April may prove one of the new sensations of the year 1882. Having long been an advocate for Rose shows out of season to catch the earliest blooms in good form from under glass as well as the latest ones from the open air, Rose shows in April and May would be quite to my taste, and their very novelty would command unprecedented success. There would be other advantages in accelerating the general flowering by a month or two. It would afford time for the majority of Roses to become perpetual bloomers. With the recent late seasons it has been as much as most kinds of Roses could do to bloom fairly well once; and a good many with superlatively excellent characters have not

succeeded in doing that. But with the first harvest of beauty over very early there might be time for a second or even a third before the end of the year. But, oh! these "buts." The present unprecedented advanced state of our Roses is more likely to end in the sacrifice of the only one good Rose harvest we have than in the gift of two or three. Almost the only hopeful sign of dwarf Roses is the backwardness of the base buds. The excessive rainfall and consequent energetic evaporation have produced such a low temperature at the surface of the ground as to be equivalent in retarding power at that particular spot to a moderate frost. Even the growth of the upper buds tends to retard the lower ones, as the upper rob and thus relieve the lower of their growing force. The wide difference between the time and state of growth in the upper and lower buds is less apparent in standards, as in these the whole bush is in a more uniform temperature. Probably this greater dormancy of base buds in dwarfs may prove a new recommendation to them, inasmuch as it endows them with a reserve of force that may produce a crop of flowers whatever wreck and ruin may overtake the upper buds and shoots now in full growth. As to the time to prune, it can hardly be just yet. Better wait and see what pruning the coming frosts and harsh winds will do for us. Possibly all that may be left for us to do will be to finish up their rough work. Certain it is the Roses will bear weather severities better unpruned. The shoots themselves afford considerable protection to their own base buds and those of others contiguous to them; and if in this, as in many other cases, the unexpected should come to pass and no more winter be experienced, it will yet be time enough to prune Roses a month or six weeks hence.

D. T. FISH.

Outdoor Tea Roses.—A plant of Homer perfectly in the open, and dormant two months ago, is now furnished with young shoots some 6 in. in length. I have been a florist from toyhood, now nearly thirty years ago, and a Rose grower from a period dating nearly as far back, and my experience furnishes no parallel. I fear very much that the bloom of the coming season will not be a very satisfactory one, from the fact of the plants having had practically no season of rest. A very severe check now with such active sap would mean destruction. But then as to pruning; there lies the difficulty. To prune early may entail the loss of the buds, on which one relies, by the cutting winds of March and April, and to prune late will certainly, should this abnormal state of growth continue unchecked, lead to much exhaustion of the plants by loss of sap.—C., *Amwell, Herts.*

Vigorous growing Marechal Niel.—"Alpha" need, I think, have no fear of his Marechal Niel not flowering, for, as a rule, the more growth this Rose makes, the more floriferous it is and the finer are the flowers. It is only the strong shoots that can yield blooms of any size, the buds on them being much larger than on weaker shoots. The late growth only shows the vigorous state the plant is in, and the weather being warm, there has been nothing to check it. Not only are Roses growing indoors, but they are fast on the move outside, and many will soon be in full leaf. As to the shoots referred to by "Alpha," I should simply stop them by nipping out the points, when they will be sure to break back, and, if tolerably well ripened, bloom from every bud. What thinning out is necessary should be done immediately after the plant has flowered, the point being to encourage the formation of fresh young shoots, which should be kept free from aphids and laid in full length.—S. D.

Saxifraga Burseriana.—I have had from time to time a good deal to do with great quantities of this plant, and my experience is that lime is by no means essential to its successful culture. The soil I invariably used, whether for pot culture or planting on rockwork, was ordinary yellow loam, peat, and coarse silver sand, to which was

added a liberal quantity of crocks pounded small. I have generally found the plants take readily to this compost, whether home grown or newly imported. I have also been most successful in striking cuttings of it in quantity. To take cuttings from it may seem singular, but nevertheless they root readily under a small handlight, and I prefer this mode of increasing it to dividing the plants.—E. JENKINS.

FRUIT GARDEN.

THE APPLE.

(Continued from p. 46.)

Dessert varieties.—Ingring a list of varieties suitable for dessert and orchard culture, one has to deal with a numerous class of Apples of nearly equal merit, for although in kitchen varieties size is a great consideration, it is rather a drawback than otherwise in dessert Apples. A good, even sample of what is generally classed as second size is the most desirable for dessert purposes, and in this class quality is the great desideratum. Appearance, too, goes a long way on the dessert table, and of late years some handsome varieties, such as Worcester Pearmain, have become popular as market fruits, in which high colour is one of the first considerations. Even this, however, cannot be placed before quality. It is to their excellence in this respect alone that Ribston Pippin, Margil, and many of the oldest favourites still retain their hold on fruit growers, for they are eclipsed as regards appearance by many later introductions. Amongst kinds specially suited for dwarf-trained trees there are several varieties of exceptional merit that can only be brought to perfection in Kent as cordons in sheltered positions, or as pot trees in orchard houses. They are, however, extremely handsome when well grown, and make beautiful dessert fruit for winter use.

Select dessert Apples for Standards.

Ashmead's Kernel	Nonpareil (scarlet)
Attrachan (red)	Oelin
Beauchampwell	Pearmain (Barcelona)
Benoni	(Claygate)
Court Pendu Plat	Pippin (Eddowes)
Court of Wick	(Cockle)
Crofton (Scarlet)	(Farleigh)
Cool's Seedling	(Golden)
Colonel Vaughan	(Franklin's)
Devonshire Quarrenden	(Gurnsey)
Golden Harvey	(Kerry)
Gossyne Scarlet	(marbled)
Golden Knob	(Ribston)
Hall Door	(Sturmer)
Incomparable (Barton's)	Russet (Aromatic)
Juneating (red)	(Rosemary)
(white)	(Syrke House)
Mr. Gladstone	(Wheeler's)
Nanny	(Wheeler's)
Nonpareil (old)	Sam Young

Dessert Apples suitable for Dwarf.

Attrachan (white)	Pearmain (Mannington)
Cox's Golden Drop	(winter)
Ingristie (red)	Pippin (Pear's)
(yellow)	(golden summer)
Irish Peach	(Keddleston)
Margil	(King of the)
Maclean's Favourite	(Orange, Cox's)
Nonpareil (Broadleaf)	Reinette (Baumann's)
(Pittsbottom)	de Bordeaux
Nonsuch (Peasgood's)	Russet (Champagne)
(Welford Park)	(Easton)
Northern Spy	(golden)
Orl's Apple	(Powell's)
Pearmain (Hubbard's)	

Dessert Apples for cordons, bushes, or orchard house trees.—In the following list will be found many kinds already enumerated, but though they succeed as orchard trees about Maidstone, they become greatly improved when afforded the shelter of a walled-in garden. Sorts marked * require even about Maidstone the shelter of a wall or orchard house in order to have them of the best quality. Many sorts, too, that succeed in Kent as cordons or bushes on the Paradise stock require in northern counties a wall or glass roof to do them full justice. An idea prevails that the Apple, being

closely related to our hardy Crab, needs no protection, and in many gardens all the best positions are assigned to Peaches, Apricots, or Plums; but if any one wants evidence that the Apple is capable of repaying extra attention let them visit Barham Court or some garden in which it is made a speciality and see for themselves. At Barham Court Apples occupy the most sheltered borders with a south aspect, or are when in pots furnished with a glass roof. In fact some few varieties of very great merit, such as Cornish Gilliflower, will only develop their exquisite flavour under such modes of culture, and where such cannot be accorded them it is better to trust to hardier sorts. Some fruit cultivators, however, in this district make a good profit by growing sorts like the Ribston, Margil, and Cox's Orange Pippin for market as dwarf bushes, the fruit on which is thinned out and grown as if for exhibition. Thus treated, they realise high prices even in years when Apples are abundant.

Kinds for Cordons, Bushes, or Orchard Houses.

Ashmead's Kernel	Orl Apple
Aromatic (Cornish)	Peach (Irish)
American Mother	Pearmain (white)
Attrachan (white)	(Balchin's)
(red)	(scarlet)
* Borsforter	(golden)
* Cornish Gilliflower	(Worcester)
* Calville Blanc	(Baumann's red)
Court Pendu Plat	Pippin (Cox's Orange)
Court of Wick	(Cockle)
Cox's Golden Drop	(Pear's)
Devonshire Quarrenden	(golden, Franklin's)
Early Strawberry	(Isle of Wight)
Esopus Spitzenberg	(Keddleston)
* Fenouillet Gris	(King of the)
* Jaune	* (Newtown)
* Rouge	(Ribston)
Golden Harvey	(Sturmer)
Incomparable (Barton's)	* Pomme d'Anjou
Ingristie (red)	* de Neige
(yellow)	Reinette Baumann
Juneating (red)	de Bordeaux
Lord Burghley	* Franche
Margil	* Grise
Mr. Gladstone	* d'Automne
* Mela Carla	(golden)
Melon	Russet (Cox's Redleaf)
Nonpareil (early)	(golden)
(Pittsbottom)	(Rosemary)
(scarlet)	(Syrke House)
(Loddmore)	(Wheeler's)
Nonsuch (Peasgood's)	* Spitzenberg (Newtown)
Northern Spy	* Swaar.

Diseases.—Good cultivation, such as a thorough preparation of the soil before planting, careful pruning, guarding the stems from injury, and rich top-dressings to keep the roots near the surface, are the surest ways of keeping trees healthy. On the elevated portions of the hills about Maidstone, where the soil is light and dry, only a limited number of sorts keep long healthy in the natural soil, many of the tender kinds that do well on the lower parts of the slopes failing through canker or mildew in a few years. Drought during the growing season has probably much to do in inducing mildew, and unskilful pruning canker. Only sorts that keep healthy under such conditions should therefore be planted, and, singular as it may appear, some of our choicest varieties do adapt themselves to these unfavourable positions, and keep as healthy as a Crab or an ungrafted seedling. Stone's Apple or Lodington Seedling, one of the best of market kitchen Apples, keeps healthy on soils where many others fail, and that most beautiful of early dessert Apples, the Summer Golden Pippin, not only keeps healthy, but bears annually good crops. Most of the Codlin tribe, too, keep equally free from canker or mildew even where it is difficult to keep Ribstons, Cox's Orange, or King of the Pippins alive. It does not pay market growers to try remedial measures, for even when the trees are but slightly affected by either canker or mildew the fruit is sure to be specked and comparatively valueless for market. If the main branches are healthy, they are headed down and grafted with sorts proved to succeed in the par-

ticular locality, and the most efficient remedy for keeping the trees in health is a top-dressing of partially rotten manure, spread over the surface after the winter pruning has been done to keep the roots cool and moist and near the surface. It is when the roots get down into bad soils that the trees rapidly canker. Pruning off the unripened ends of the wood so that the main shoots or leaders start from thoroughly ripened wood is also of great benefit, for unripe wood is liable to get injured by frosts, which rupture the sap vessels, and if left on the tree cause wounds similar to those produced by canker.

Mildew when it makes its appearance on the leaves must be treated superficially with sulphur, the best means of applying it being by one of the sulphurators used for Hops. They do the work well, distributing it evenly over the surface, but to be effectual it must be renewed at intervals. If put on while the leaves are damp with dew it sticks to them, and has the effect of killing the fungus. It is best applied when the weather is clear and bright, or when hot days and cool, dewy nights prevail. Prevention is, however, better than cure, and the means employed to ward off canker will generally keep off mildew.

Moss and Lichen.—These usually occur on trees that grow on wet, undrained ground. They are seldom troublesome where the land is well prepared or naturally well drained, for although the Apple often suffers from lack of, rather than from excess of, moisture, anything in the way of stagnant water in the soil soon shows itself in the shape of Moss-grown branches. Efficient drainage is the only permanent remedy, but as a superficial measure the stems and main branches should be scraped in winter and coated with lime-wash. The branches must also be dusted with freshly slaked lime; and as Moss always spreads most rapidly on trees in a stunted condition, they should get a good dressing of rich manure, either solid or liquid, to ward them into vigorous growth.

JAMES GROOM.

Fruit prospects.—"J. G." (p. 34) appears to be more fortunate as regards the probability of getting a crop of fruit than we are here on top of one of the Surrey hills. Sloping to the north in an exposed position, we have a fine lot of young Pear trees, two years planted, which made plenty of fruit spurs, and I was looking forward to getting a fair crop from them, but I fear my hopes are blighted, as most of them are in a very forward state, quite as forward as it would be safe to have them at the beginning of March in such an exposed position. Some of the buds are indeed already expanded.—W. M., *Kingdon, Epsom.*

Damsons, or Witherslack Plums as they are called here, are a very valuable crop, peculiar to the district and border of Westmoreland. The trees are along the roadsides, in the woods, hedgerows, fields, and gardens like wild Cherries or Hazel Nuts. To root prune such trees, as has been suggested, would be out of the question, and to cut out the twigs or branches would destroy the fruit for years. Damsons do not transplant well; they are chiefly propagated hereabouts by the birds, and are allowed to grow where they like. The fruit differs in size and flavour according to the locality in which it is grown. I have been twelve years in this district and have not seen two quarts of Sloes during the whole period.—J. E. WAITING, *Grange.*

Light an aid to successful forcing.—I prefer bright frosty weather for the setting of Grapes and Strawberries to the mild, still, cloudy atmosphere which has lately prevailed. I can look back upon seasons in which our houses were furnished with good crops of both these fruits when from 10° to 22° of frost have been registered

for several nights continuously while they were in bloom. Well do I remember the exceptionally severe winter of 1860, which occurred just at the time I had a small house of pot Vines in full bloom; nevertheless, I never before nor since had early Grapes set better. Last season, when our early vinery was in bloom, we registered 26° of frost, and the Grapes never set better. In frosty weather we get a much stronger light than when the weather is mild, and as a rule more sun. I have noticed, too, that when the outside air is in motion we get a stronger light in our houses. In a word, I prefer either windy or frosty weather for early forcing to the dull, dark days, for which the present winter has been remarkable.—J. C. C.

Peach trees shedding their buds.—Will some one kindly inform me the cause of my Peaches and Nectarines dropping their buds? The house is a lean-to in which there are six trees—three on the front and three on the back wall. They have been in fair condition as to moisture at the roots except one tree, which, where the heat comes in, has been a little dry. The house is used for keeping bedding and other plants from frost. The wood is very green on most parts of the trees, but last year it was quite as green and we had a very fine crop. From one tree we gathered fourteen dozen. I have kept the house open when convenient. There is a wooden ventilator in front 8 in. wide, and one at the back 12 in. wide. There is no other way of giving air except by opening the door. The thermometer rose up to 80° or 90° with sun-heat. I used a little fire-heat for a few weeks to ripen the wood, but never without air. I have painted the trees with cal, sulphur, soot, and Gishurst Compound. I top-dressed the border and gave it a good soaking of water in the latter end of December. I perceive the buds are also dropping from the trees outside on the same wall—a south aspect one. Any information on the subject will be much appreciated.—C. W.

Diseased Vine roots.—I have two houses devoted almost entirely to Vines; each is 33 ft. long with 20 ft. length of rafter. The Vines are planted in a bed inside the houses, and the roots are allowed to pass through openings into an outside bed. They appear fairly healthy in foliage, but the crop colours badly, and shanking and mildew are troublesome. In both houses I find some of the roots diseased, and the inside borders appear to contain a small, white, offensive fungus. The houses are heated by hot water. I should be much obliged if you could inform me what is the matter with the roots (of which I enclose specimens) and suggest a remedy. Would it injure the Vines to cut away the inside roots and leave those on the exterior? Both houses contain eight or nine year-old Vines.—H. D. E. [The roots sent are in a very bad condition—cracked, corroded, and in some places dead. What has brought this state of things about we cannot say, not being on the spot. The "small, white, offensive fungus" is of no account; it is one of the innumerable species which hasten the decay of already injured vegetable material. As for cutting away the inside roots and leaving the outside ones to support the Vines, that is a question which perhaps some of our Grape growers will answer.]

Mealy bug on Vines.—If "St. Bridgid" sets any value upon her Vines, let her reject the mixture, viz., one pint of paraffin to one gallon of water, adding a quarter-of-a-pound of soft soap and half-a-pound of washing soda, as, owing to the oily character of the paraffin, it is only by constant agitation that it can be kept properly mixed with the water, and then the quantity, one pint to a gallon, applied to every part of a porous stem of a Vine would prove fatal. The safest and best plan would be to remove all plants, and thoroughly cleanse them before they are taken in again; then untie the Vines, remove every particle of loose bark, and well scrub the rods and spurs, also every part of the structure, with strong soapy water. Scald the floors and walls, stop all holes in the latter, and give the house two coats of paint. This done, stop all holes and cracks in the stems and spurs of the vines with pure Gishurst Compound,

and paint with the following mixture: To three quarts of finely sifted loam of a heavy character add half-a-pint of gas tar, work into a paste, then reduce with boiling water to the consistency of thin paint, and apply it when cold. Examine the Vines once a week when they break, and apply methylated spirits to any bugs which have been missed before they have time to breed.—W. COLEMAN.

Liming Gooseberry trees.—Should lime to be forked in under Gooseberry trees be slaked or not?—J. H.

EDITOR'S TABLE.

CATTLEYA LEOPOLDI.—A bold and pretty Orchid, with curious Sage-green flowers stained with claret blotches, and deep rose colour in the lip. Within and without the flower, what a consummate charm of colour it affords to the eye that loves quiet! It also gives off a very pleasant, though a not too strongly-perceptible odour. It is sent to us by Mr. Douglas, Loxford.

A TWO-COLOURED HYACINTH.—A very beautiful two-coloured Hyacinth comes to us from Mr. Dickson, the well-known florist in the Central Avenue, Covent Garden. Half the spike is white, with a delicate margin of azure, the other side being a most delicate bluish-lilac.

OPONTOGLOSSUM CRISPUM.—The white form of this comes to us from Mr. Douglas, Loxford. He says that in the warm house it is quite a good pure white. An Orchid so lovely in form and habit we cannot have in too great a variety of hue; and good whites, well grown, will form lovely plants.

OPONTOGLOSSUM PULCHELLUM.—The prettiest flower of the week is this gracefully-formed Orchid with a Lily-of-the-Valley-like stem. We may expect a great future for the Orchid race when the kinds remarkable for great beauty of form like this are easily obtained and well grown. Then we may look forward also to the usual sticky, leathery, red-potty look of the Orchid house generally being done away with by softening combinations of Ferns, Mosses, and other graceful plants. It were much better that Orchids should take their true place as sociable members of the vegetable kingdom instead of looking "things apart."

A SINGLE ROSE.—Mr. George Paul sends us a beautiful Rose under the name of Rosa Camellia japonica, which we cannot at present trace to any species, but hope soon to illustrate. He says: "I enclose you a flower and leaves of this Rose, of which I sent you a bloom from Nice last year. It is beautifully in flower now in our forcing houses."

PRIMROSES FROM CORNWALL.—A pleasant surprise from the Hon. and Rev. J. T. Boscawen in the shape of a nosegay of fully-developed Primroses gathered in his garden at Lamorran, where they were sown in the Grass, and where they are now in flower. There are wide differences in the climate of our little island to permit of so much variety in the blooming of native plants. These are not sickly, poor little Primroses, but large and bold ones. Cornwall, however, will no doubt pay a penalty by losing its Primrose bloom at an earlier date than we do about London. The colours of these Grass-cushioned Primroses, all sown where they blow, fall into six groups. One is a delicate salmon, with a slight tint of pink; the others are lemon, creamy white, delicate mauve, dull crimson, and deep lilac.

PLUMBAGO ROSEA COCCINEA.—This flower is of a most cheery carmine colour, and, being very easily grown, it is a charming plant for the winter and spring months. It comes from Farnboro' Grange. It appears to be a variety of the less valuable *P. rosea*. Well grown in a country garden, the flowers are more vivid than we see them about London.

AN INFANT FREESIA.—Among the plants that do not yet, and may not ever, appeal to the crowd, but which have a charm for those in quest of quiet beauty and grace, Freesias are likely to hold a place. Dr. Michael Foster sends from Shelford, Cambridge, a creamy white and orange-stained seedling. "It is not," he writes, "much to boast of—the spike scanty, the flower small and pale—but then, poor thing, the seed from which it sprang was a hardly-formed ovule this time last year. Though small and pale, in all essential features it resembles its parent—the form called pallida." That these plants should be so promptly raised from seed makes the raising of a stock easier. The species, varieties, or forms are much in want of being cleared up, and we hope Dr. Foster will not desert them till we know all about a little family that promises so well.

CLERODENDRON THOMSONÆ.—In January the creamy white wreaths of this are very welcome with their deep crimson little button-buds and flowers. Well grown and trained with some freedom, such a plant is indeed a treasure in winter and early spring. It is good even stiffly trained on the barrel trellises; much more so if trained in a free and tasteful manner over light arches or slender pillars. From Mr. Crook.

A TREE PEONY BLOSSOM.—It is pleasant to see in the midst of one of our smoky horrors a beautiful bloom of the Tree Peony—a double and yet a "broken" flower, nearly 6 in. in diameter, of a most refined and delicate colour, with the centre open and full of yellow stamens. It comes from Mr. J. C. Clarke, of Cothelstone, who forces it very well.

PROPAGATING.

ROOT AND LEAF PROPAGATION.

Root cuttings.—It has been proved long ago that a great number of plants may be reproduced by means of leaf cuttings, but this mode of propagation, with one or two exceptions, is seldom resorted to, and in the greater number of cases it is not required. Still, the refusal of some plants to be increased by ordinary means necessitates a trial of less frequently practised methods. The attention that is now being paid to the propagation of Orchids by means of seed is likely to lead to very important results, and the ease with which plants, not readily increased by cuttings, may be made to succeed when grafted or budded on others are only a few of the evidences of the value of such experiments. It is well known that Anemones, Cydonia japonica, and Paulownia imperialis may be increased by root cuttings, and the great commercial value of the discovery that the Ipecacuanha plant can be propagated freely by such means is now a matter of history. Many other instances may be noticed, such as Pelargoniums, Bouvardias, Dracenas, &c., but perhaps it is hardly necessary to recount them here. The plants root cuttings of which I have tried and succeeded with are Stangerias, which grow freely from short pieces of the thick roots, Clerodendron fallax, C. fragrans, and the hardy C. tri-chotomum, Panax plumbatum, Aralia cordata, Petrea volubilis, Aristolochia Goldieana, Acalypha, Acacia pubescens, A. grandis, and A. pulchella, Drosera binata, D. capensis, and D. spatulata. The whole of these were placed in sandy

soil in a propagating frame, and were a decided success. Others, which were tried, but failed to grow, were *Asparagus plumosus*, *A. procumbens*, *Bomarea*, *Casimiroa edulis*, and several other plants, amongst which was *Dracena gracilis*. This plant is singular, inasmuch as it seems to be the only *Dracena* which refuses to grow either from pieces of the stem or of the roots. One of your correspondents has succeeded in raising the handsome *Arnebia echioides* from root cuttings, and it is now well known that *Trichinotum Manglesi* may be propagated in that way.

Leaf cuttings.—These require great care, failure arising oftener from inattention or wrong treatment than from any fault as regards the method. I have been successful with leaf cuttings of *Drimiopsis Kirkii*, *D. perfoliata*, *Phyllagathis rotundifolia*, *Bertolonias*, *Sonerilas*, *Peperomias*, and the new and beautiful *Pinguicula caudata*. This last is a decided success, and we may now look for this plant becoming as popular as it undoubtedly deserves to be. I tried the scales of *Marattia* and some *Cycads*, all of which, however, failed, though it is stated on unquestionable authority that these plants have been propagated by this means. Leaves of the two species of *Zamioculcas* rooted freely in Cocoa-nut fibre, and I intend to try others of the *Aroid* family this year. It is well known that most of the *Gesnerads* are easily increased by means of leaf cuttings, as well as the *Bryophyllum*, *Echeverias*, *Sempervivums*, &c. I have never succeeded with the leaves of *Agaves* or *Aloes*, though I have heard that they can be thus propagated. I trust that any who have made observations on this subject will communicate them for the guidance of others who are making experiments in the same way. B.

NOTES AND READINGS.

COLOURED PRIMROSES.—There is evidently a future in store for these pretty early summer flowers, the single forms of the common *P. vulgaris* especially; the double kinds are pretty, but they cannot compete with the broad open-eyed single varieties for vigour or free flowering habit and effect. The majority of varieties are of rather indeterminate colour, but several of the finest and best growers are exceedingly distinct and promising. On a broad plateau of Grass bordered with Cedars and other trees, which I saw last year in one garden, a number of these were planted along the margin in an informal manner; the effect was equal to anything I have seen in the way of colour and brightness. There were only too few of them, and, as was remarked at the time, it is surprising how difficult it is to procure such simple flowers, when one wants them in quantity. All the varieties continue to bloom for weeks, and look and do best on the Grass, where they should always be planted profusely, and the common wild form may always be planted freely as well.

ART IN THE FLOWER GARDEN.—A critic lately observed that the danger of the future threatened to be such a "surfeit of art" as to interfere with the utility of things. Let us hope the line will be drawn in time in the matter of flower gardening. There has already been plenty of straining after effect. What seems to be needed most now is greater variety, a better appreciation of common things, and industrious planting and culture. Hardly any one can go far wrong in planting flowers anywhere where they will grow and not be in the way. The thing which strikes a visitor the most in large gardens is the scarcity of flowers, except, perhaps, in the few beds that constitute the flower garden. Gardeners have plenty of work to do for years to come in simply planting up their odd nooks and corners with spring and summer flower-roots, and especially bulbs, of all the hardy kinds that will grow. In

the artistic arrangements and embellishments of many gardens the faults are many and visible, but they are of such a character often as not to be readily altered, and the only thing that can be done is to modify them by planting and furnishing the ground as if they were not there. It is beginning to be seen that after all greater liberties can be taken with "the style of the mansion" and its surroundings than is imagined, and formality is fast losing its hold as a recognised necessity in such cases. At all events let us plant!

FARMERS' GARDENS.—I see it stated in another paper that there has hardly ever been such a demand for fruit trees as there is at the present time, and it would appear from the advertisements that one reads that there is a proportionate demand for stocks—standards, too, for natural trees. The cause of this is said to be the farmers, who are turning their attention to fruit culture. A good orchard round any farm steading would go far towards solving the problem of bringing the fruit supply within the reach of the general public, and one can only wish success to such enterprise, but it is not only the farmer's orchard, but his garden that needs remodelling as well. The farmer is not a gardener; if he was, it would be better for him, and it is a fact that among the most extensive and most scientifically managed farms of the north it is rare to find a well filled garden or a garden of flowers. The English farmer beats his neighbour across the border quite, but neither comes up to the artisan, or even the navy, where either of these congregate in or near towns or villages. The farmer never puts in an appearance at the local horticultural show; he is, in short, not "garden-proud." When his wife happens to be fond of flowers she sometimes can do much. One of the really most attractive cottage fronts we ever saw was in a garden exclusively managed by a farmer's wife and daughter. There one used to see a grand clump of *Lilium candidum* ever so long in the ground, grand masses of the Christmas Roses, Wallflowers, Tulips, Perennial Candytufts, and other old-fashioned plants that stood all through the bedding mania unaltered in their simplicity, and which are probably still extant, but under changed hands.

THE ORIGINAL GOTHIC ARCH.—That leafy aisle of Limes in a late number of *THE GARDEN* suggests one of those aspects of formal tree planting that the landscape gardener may occasionally indulge in to some purpose and with good effect. It has been said that avenues of trees should either be planted wide enough apart to give breadth and nobility to the prospect, or close enough to form a lofty arch. The Lime is admirably adapted for the latter purpose, and it grows fast. Not far from the ornate cathedral of Lichfield an avenue of Lime trees like that in *THE GARDEN* leads up to the main entrance of an Ivy-clad church, and the branches of the trees have been so judiciously pruned that they form nearly as perfect a Gothic arch as possible. A friend drove us miles to see it once, and it occurred to me that it must have been an avenue of Limes that first suggested the Gothic aisle with its pillars, arches, and groins. The trees had straight, clean stems for some feet from the ground, and above that the branches extended naturally, only such limbs having being lopped off as interfered with the contour of the arch, which was perfect.

CONSERVATORIES.—Mr. Fawkes' remarks on this subject are suggestive and practical, but his proposition, that the main object of a conservatory is to afford pleasure and interest to human beings and not to grow plants and flowers, will

be regarded as expressing something different from what is ordinarily the case. No doubt the "pleasure and interest" are essential considerations, but it is the growing and the flowering of the plants that contribute most to that end. Moreover, we do not remember ever to have seen a conservatory in which a large proportion of the plants were not grown in it, and furnishing lofty structures with suitable subjects can scarcely be accomplished in any other way than by planting out a portion of the plants at least. The "compromise" system is the rule. How can the architect best meet the wants of the cultivator in that respect? Large plants may be and are probably better in large tubs or pots, plunged out of sight if necessary, but such specimens are virtually fixtures, and, as a rule, they occupy too much of the central portion of the conservatory, rendering all dark and dripping near them, and leaving only the outside margin for portable plants in flower. What the conservatory designer has to attend to most is to contrive that the structure will admit the greatest amount of light all over the floor of the house and provide ventilation; and it has yet to be proved that any style of mansion architecture existing necessitates a conservatory style in which every stick and pane may not be made subservient to these ends. Mr. Fawkes does not, it is to be feared, fully understand all the circumstances of conservatory furnishing and culture. His conservatory illustrations in his book are nice enough, but they look more like drawing-rooms than conservatories, and do not appear to contain a hand-barrowful of plants altogether—virtually empty in fact, and are not the kind of thing at all which gardeners have to deal with at country mansions. I do not agree with Mr. Fawkes when he says in his work that the "keynote to the effective treatment of the conservatory" is to regard it as a floral apartment, and that its "uses and functions" will not be properly developed nor adequately acknowledged till it is so regarded. In these days of plant decorated drawing-rooms and halls, the conservatory must be something more than this.

PEREGRINE.

KITCHEN GARDEN.

BRUSSELS SPROUTS.

THESE are unquestionably the best and also the hardest variety of the Cabbage tribe which we possess; in fact, had it not been for them we should not have had a dish of green vegetables during the last three severe winters. I do not think that Mr. Clarke's method of raising them is the best. He says they are not to be coddled, yet he recommends sowing them in an unheated house, a mode of treatment which is unnecessary, at any rate in North Cheshire, where considerable quantities are grown for the Manchester markets. The plan which I have frequently adopted, and with great success, is as follows: In autumn or early in winter select a clean piece of ground on which Potatoes have been grown. If the soil is too light give it a dressing of marl, which by exposure to the atmosphere will become friable, and may then be forked in with as much rotten manure as may be requisite. The land should then be marked into 4-ft. beds, and the seed sown as soon after the middle of February, as the soil is in proper condition to receive it; sow thinly so as to avoid the trouble of thinning or transplanting into nursery beds.

In arranging the rotation of crops, Potatoes, next to Celery, are the best preparatory crop for any of the Brassica tribe. In autumn or early in winter trench or plough in deeply as much manure as may be required. In the latter part of May, when the land is in good condition,

make drills 12 in. deep and 3 ft. apart. On the first favourable occasion carefully lift the plants singly with a trowel. The advantage of having applied a little marl in forming the seed beds will now be apparent, as if lifted carefully every plant will have a good ball of earth attached to it. If this is done in showery weather the plants will not show any symptoms of flagging, and instead of receiving a check their growth will in reality be accelerated. The plants should be put in along the bottom of the drills, 3 ft. apart. As the season advances they should be earthed up by levelling down the ridges. This will check the growth of weeds, stimulate that of the plants, and prevent them from being blown about by the wind—an important point in the case of a plant which bears a heavy crop at such a height above the ground.

I have tried many varieties, but in my opinion the Rosebery is the best. Under ordinary circumstances it will grow 4 ft. high. We usually commence gathering the produce in August, which is as early as we require it. The only objection I have to Mr. Clarke's method of sowing Brussels Sprouts where they are to grow is that in the early stages of their growth, when their progress is very slow, they would be eaten off by slugs and snails. Of course they are liable to be destroyed by the same means in the seed bed, but it is much easier to protect them therein.

Wythenshawe, Northenden. W. NEILD.

MUSHROOMS IN THE OPEN AIR.

FOR many years thousands of pounds of good Mushrooms have been sent annually to Covent Garden, the produce of outdoor beds. Something over twenty years ago there lived in the neighbourhood of London a Mushroom grower, whose grounds being invaded by a railway or some public works, demanded £700 compensation, or rather estimated the value of his crop at that amount of money, a fact which will give an adequate idea of the extent to which this esculent was grown in the open at that time, and we know that the supply has much increased since then. It is not a question of whether Mushrooms can be obtained by open air culture, but whether that is the best method of growing them in a general way. Given well heated sheds and the necessary skill, the production of Mushrooms in winter is a matter of ease and certainty. In private gardens these conditions can be commanded, but the market gardener cannot afford such expensive fittings, and so perforce has recourse to the beds in the open air, where, if the chances of success are less, the outlay is not so great; and although large quantities of manure are required it becomes useful for other crops, and the beds themselves later on are used for Tomato culture, the plants being pegged down on them.

I see Mr. Barter states that failures occur through the beds being made up at the wrong time, and that if made from February to the middle of March success is certain. Of course the chances of failure are diminished if the worst months of the year are allowed to pass before undertaking the work, but I would remind your correspondent that the question under discussion is the production of Mushrooms all through the winter, not at the end of it and in early spring. It is from November onwards that a supply is required, both by private growers and market gardeners, and the maintaining of the same in spite of wind and weather is no easy matter by means of open-air culture alone. This winter has hitherto been remarkably favourable for the growth of Mushrooms on open-air beds, at any rate in the neighbourhood of London, and there has not been that demand upon the resources of the grower which adverse climatal conditions entail, and which only much labour and unremitting care will combat successfully. With a well-heated, watertight shed, Mushroom growing is almost a pastime, but in the open air it is almost a continual warfare with the elements. J. C. B.

Autumn-planted Potatoes.—In answer to your correspondent (p. 43), I would say let autumn planting alone. I have tried it, and failed. In the autumn of 1879 my employer wished me to plant about half a rood of ground with Magnum Bonum, which I did about 6 in. deep. But when the time arrived for their appearance above ground only about half of the sets came up. I may also state that the ground was mulched with stable litter to keep off the frost. Last spring the same plot of ground was planted with the same variety of Potato, and a crop equal to about 10 tons per acre was the result. I therefore consider that autumn planting of Potatoes will not succeed north of the Humber, whatever it may do in the south.—W. W. MALTON.

SPINACH AND ITS SUBSTITUTES.

I HAVE read Mr. Christison's remarks (p. 43) respecting Perpetual Spinach, which in most garden establishments is in use throughout the entire year. There are, however, no fewer than four or five distinct plants, the leaves of which are occasionally used as Spinach, all being nearly equally delicious when properly cooked, viz., the three varieties of common Spinach (Round-leaved, Prickly, and Flanders), the New Zealand Spinach (*Tetragonia expansa*), the *Mesembryanthemum edule*, or Hottentot Fig, the *Atriplex hortensis*, or Giant Orache, and the *Beta maritima*, or Perpetual Spinach.

Common Spinach.—The Round-leaved variety of this is less hardy than the Prickly and also more succulent, and consequently preferred for summer use. It is mostly sown in lines between other summer crops, such as Peas and Beans. It requires a rich, well-manured soil in order to induce it to develop its large and succulent leaves—the only part of the plant used. The seeds generally vegetate quickly, and as soon as the young plants are large enough to be handled they should be thinned out to a distance of 9 in. or 12 in. apart. During dry, warm weather and on light land, however, it is impossible to prevent the plants running prematurely to seed; therefore it is necessary to make repeated sowings of successive sowings or have recourse to some of the other varieties named, such as the New Zealand sort. As soon as the Round-leaved sort has become seedy and unfit for use, it should at once, unless seed is desired, be cleared off to prevent the exhaustion of the soil. The Prickly variety, being very hardy, should be sown for winter use towards the end of August on deeply-dug, well-manured land. The seed should be sown in lines 18 in. apart and the plants thinned out to the same distance apart, as has already been recommended in the case of the Round-leaved or summer variety. It will then only require to be kept free from weeds. No amount of cold or frost will greatly affect this plant, but it is sometimes attacked at the root by a maggot, which soon produces unsightly bare patches. In order to as far as possible obviate this, a good portion of soot should be dug in along with the other manure, and repeated slight surface-dressings of soot may be occasionally given while the plants are young, which will also free them from slugs and other garden pests.

The New Zealand Spinach is altogether a different plant from the above, and forms an exceedingly useful culinary vegetable, indispensable, in fact, in dry summers in light land gardens. It furnishes a constant supply of Spinach throughout the summer months, and as regards quality it is considered by some to be even superior to any of the other varieties. It is, however, a tender plant, and succumbs to a very few degrees of frost. It should consequently be sown in heat about the beginning of April, potted singly in 5-in. pots, and planted out in the open air soon after the middle of May. In order to give every encouragement to so useful a plant a piece of ground should be selected for it well exposed to the sun. The soil should be thrown out on each side of the bed (which should be about 5 ft. wide, and any convenient or desired length) to a depth

of 2 ft. or 2½ ft., and in the bottom of this trench some 18 in. or 2 ft. of rich pig or stable-yard manure should be placed; if not too much rotted, so much the better, as it will then be likely to give out a little warmth. When the excavated soil has been placed upon it, and when this has fairly settled down, the plants should be turned out upon it, placing them in the centre of the bed and 4 ft. or 5 ft. asunder. A bed, say 15 yards or 20 yards long, by 5 ft. or 6 ft. wide, will furnish an ample supply for almost any establishment; therefore, only a few plants will be likely to be required for even a large bed; and placing a hand-glass over each plant for a week or ten days after being planted will materially assist them in establishing themselves, and in producing abundance of their succulent leaves from the middle of June until the end of October, or until frost destroys them. It produces seeds freely, and if the bed or portion of ground occupied by it during one season is left undisturbed until the following month of May abundance of self-sown plants will be found upon it, and the required number of these can be very readily transplanted to the newly-formed beds therefore, sowing the seeds annually in heat is not absolutely necessary.

The Hottentot Fig (*Mesembryanthemum edule*), sometimes used as a substitute for Spinach, is in many respects similar to the New Zealand, and it is quite likely that similar treatment will suit it. The Giant Orache (*Atriplex hortensis*) attains a height of 6 ft. or upwards; it belongs to the same Order as the Spinach, and produces large leaves, which form a good substitute for it, as do also several species of the genus *Chenopodium*, which, being annuals, may be sown in March or early in April, and the plants thinned out to the necessary distance apart.

The Beta maritima, known as the Perpetual or Beet Spinach, so well described by Mr. Christison, belongs also to the same family or Order. It is possibly a better substitute for Spinach than the Orache or any of the *Chenopodiums*. It is a biennial, and if sown in April in lines, and properly thinned out and kept clean, it will produce abundance of fine large leaves during the ensuing summer and winter months, as well as during the early months of the second summer, when it will probably begin to show symptoms of running to seed. I may, however, add that although the two last named plants form fairly good substitutes for true Spinach still the latter, in its several varieties, together with the New Zealand Spinach, are always, when they can be had, preferred to them. P. GRIEVE.

SHORT NOTES—KITCHEN.

Forcing Rhubarb.—How many years can I force the same roots of Rhubarb with hot manure in the open ground under pots? Will some of your correspondents kindly answer this question?—G. F.

Polley's Nonsuch Turnip.—I find this to be an excellent variety for late sowings. We have a fine crop of it, sown the second week in August: the young plants made rapid growth, and formed well-shaped bulbs in a quite short time. This Turnip has long tapering foliage, very distinct from that of any other kind I have grown. In this locality it is a great favourite for garden use, either early or late.—JAMES GROOM, Linton.

Cabbage Broccoli.—Through Mr. Gilbert's kindness in sending me seed of this valuable new vegetable, I can bear testimony to its good qualities. Having grown it for two seasons, I find it everything I can wish in the shape of a good, hardy, delicious vegetable. It withstood the frost of 1880, when many other kinds were cut up. It came in then to fill a blank very acceptably.—W. DIVERS, Wierton House, near Maidstone.

Transplanting Mushrooms.—When Mushrooms are growing so well as represented by "J. S. W." (p. 43) it seems a pity to disturb them before some are large enough for use, as they will always find room enough for themselves; therefore, little is gained by transplanting them—at least on the same bed, which must in some degree disturb the mould or casing, and thereby harm that part of the crop that would doubtless soon make its appearance there. Transplanted Mushrooms scarcely ever do any good; they exist for a time and then die.—J. T. B.

NOTES OF THE WEEK.

EUCHARIS AT MOUNT ANVILLE.—I was at Mount Anville the other day, where about 1080 *Eucharis* flowers and buds have and are now being borne on 18 plants, which average 15 spikes, each spike averaging four flowers. One plant in a 12-in. pot has 23 spikes, bearing 120 flowers.—F. W. B.

EIGHT SHADES OF COLOUR IN CHINESE PRIMROSES. From Mr. Crook, of Farnborough Grange, compare in variety with our native *Primroses*, but, having the advantage of warmth and glass, are larger and finer. They are described as very robust in habit, and they are very large in size and rich in colour, with the blooms standing 6 in. above the foliage.

CATTLEYA TRIANE BACKHOUSIANA.—This glorious variety has just expended its blooms for the first time in the York Nurseries. It is a novelty in a two-fold sense, having not only a splendid deep crimson labellum, but a dash of purple in the middle of each petal. Such a variety as this is a real acquisition, and well does it deserve the name that has been given it.

CHRYSANTHEMUM CORONARIUM.—On June 4, 1881, you wrote, "*Chrysanthemum coronarium*. This ordinary single form is well worth keeping pure." To this I quite agree, and I shall be glad to send a pinch of seed from my original Algerian plant to anyone who may care to try it, and who sends a stamped envelope.—A. KINGSMILL, *Eastcote, Pinner*.

A HUGE CECYOGYNE CRISTATA.—At Stevens's rooms during the past week a gigantic specimen of this lovely Orchid was sold from, we believe, Sir Trevor Lawrence's collection. It measured fully 5 ft. across, and the globular mass was quite a yard in depth—the whole a mass of plump bulbs, bearing quite a thicket of long pendulous spikes, some bearing from six to nine flowers each. The bulk of the plant was of the old variety, but there was an intermixture of the pale yellow lipped form *Lemoniana*. This glorious plant was sold to Mr. F. Sander, of St. Albans, for eleven guineas.

SEEDLING ABUTILON, CARNATION, AND PRIMULA.—From Mr. H. Parr, Givon's Grove, Leatherhead, come flowers of a very beautiful seedling *Abutilon*, the most distinct in colour that we have seen, being a deep rich crimson-purple. The flowers are large, and of a fine bell-like form; also a seedling Chinese *Primrose* and a *Carnation*. The *Primrose* is an intensely deep velvety crimson, as deep as any we know, and the flowers large, circular, and beautifully fringed. The *Carnation* one can only speak of as to colour, as it arrived in a damaged state. The colour is a bright rich rose, flaked with a lighter hue. Mr. Parr has certainly got into the right track as regards raising new and distinct varieties.

COLOURED v. COMMON PRIMROSES.—A feast of these beautiful flowers is now approaching; in fact, they have been more or less in bloom all winter, but the ordinary yellow variety keeps its season of flowering better than its coloured allies in the garden. I find that the woodland *Primroses* are only just sending up their main crop of flowers, while the coloured ones either in beds or planted on mossy banks and in sheltered nooks are fully in bloom. Beds of the dwarf white single variety are indeed quite sheets of bloom. This variety is the most floriferous of any sort which we grow. Beds of transplanted roots last spring, shaded by means of planting Stocks for cutting between the rows, are now the most effective outdoor flowers we have, preceding, as regards floral display, even the *Snowdrop* itself.—J. G., *Linton*.

A YELLOW ODONTOGLOSSUM CRISPUM.—The only true yellow variety of this Orchid that we have yet seen was shown to us the other day by Mr. Bull, who received it from Mr. Hardy, Pickering Lodge, Timperley, Altrincham, the owner of a rich collection of Orchids. The flowers were of moderate size, with broad undulated sepals and petals, and a finely crisped labellum, and the whole flower of a beautiful canary-yellow, the only markings being just one spot of reddish brown on the lip. We have often seen plants of this Orchid with a yellowish tinge to the flowers when first expanded, which, however, passed away as the blossom aged, but never have we seen such a delicate pure yellow as the variety in question possesses. It is a valuable acquisition.

SALE OF ORCHIDS.—The first portion of the choice collection of Orchids formed by Mr. F. Yates, Fenniscowles, Blackburn, was disposed of the other day at Stevens's rooms. There were over a hundred lots, and some of the rarer kinds and finer specimens realised high prices. Among these were the new and rare *Cypripedium Spicerianum*, a strong healthy plant of which with a dozen growths fetched 100 guineas; *Dendrobium Ainsworthii* realised £21; *D. Falconeri giganteum*, £25; *D. Wardianum*, a fine plant with twenty-one bulbs, which bore over 300 flowers last season, £19, and lesser plants of the same species, £13 and £11; indeed, all the plants of *D. Wardianum* fetched high prices. A grand plant of *Cypripedium Harrisianum* realised 8 guineas; *C. Stonei*, 10 guineas; *C. Dominianum*, 7 guineas; *C. Veitchianum*, 10 guineas; *C. Sedeni*, 4 ft. through, 9 guineas; *Cymbidium eburneum*, 11 guineas; the rare *C. Parishii*, 25 guineas; *Dendrobium filiforme*, a fine plant, 15 guineas; *Laelia purpurata Nellisi*, £7; *Angraecum sesquipedale*, 6 guineas. All the other lots also realised fairly high prices, all the plants being in excellent health.

NURSEYMEN'S HOUSES.

"FENMAN" (p. 38) desires information regarding heating, &c., houses in which to grow market material. As I have frequently been consulted on the same points, the following suggestions may be useful to "Fenman" and others similarly situated. I understand that he wants maximum efficiency at a minimum cost, with substantiality and durability. For ease in working he aims at simplicity and the elimination of all complication. But he proposes to have six span houses each 100 ft. by 10 ft. in two blocks, in each of which blocks the houses are practically united side by side with an 18-in. gutter between each of the adjoining houses, something like this:



He can certainly save two walls by doing so and economise a little heat, but he must remember that in this case the inner house can have no bottom ventilation, and the two outer houses can each have bottom ventilation only on one side. The valley gutters, however wide, will be a never-ending source of annoyance, and the obstruction to the solar rays will be considerable. I would decidedly recommend him to have the houses in each block separate. Let each house be 5 ft. high to the eaves (2 ft. 6-in. wall and 2 ft. 6-in. opening light), and 11 ft. wide (all outside measure). This width, allowing for a 2-ft. 9-in. path, and say 44-in. wood and glass work on each side wall, gives the greatest width of flat stage which can be handled with ease. In fact, a house 11 ft. wide, with a path up the centre, gives the greatest

proportionate efficiency and economy of stage area. The height to the ridge should be 7 ft. 9 in.; with a flatter pitch than this rain will drift in under the laps. He does not say what is the aspect of the two blocks of houses, but of course he intends the ridges to run north and south. As to the span cut into a north and south lean-to by a partition wall, of course he knows much better than I do what he intends to grow and how he intends to deal with these two houses. I should have thought he would have had plenty of cool space in the long spans without taking the trouble to cut off the south span from another span. Why not retain the south lean-to and utilise the north side of its wall by having the stoke-hole, fuel shed, &c., there?

As to heating, let me urge "Fenman" to heat all his houses with hot-water pipes, and not to trust to subsidiary flues. If he has the proper amount of pipe properly planned and fixed, with a suitable boiler well set and stoked, he need never trouble himself about utilising the boiler chimney flue for heating purposes. Each house 100 ft. long, 11 ft. wide, 5 ft. high at the sides, and 7 ft. high to ridge, will require to maintain a suitable temperature for ordinary greenhouse plants, presuming the boiler is worked economically and the pipes not forced, but allowed to attain a moderate temperature only, a total of not less than 286 ft. of 4-in. pipe, or its equivalent of 3-in. pipe, 380 ft., say roughly, two rows of 3-in. pipe up each side near the outer wall. I should, however, suggest to him that one of the spans be arranged as a plant stove. To do this he will require, instead of 286 ft., 430 ft. of 4-in. pipe, with vapourising troughs to suit his convenience; these may be either cast with the pipes, or shallow loose boxes of zinc or other suitable material having a concave bottom to fit the pipes. For vapourising purposes by no means should he allow hot-water pipes to run through tanks containing a large quantity of water. As a rule, the only business of a concrete cement or galvanised iron tank in a house is, firstly, to enable the rain water from the roof to be discharged into it; and, secondly, that the water contained in it may approximate to the temperature of the atmosphere in the house. In this plant stove he may, for propagating purposes, find it advantageous to have a hotbed—namely, a portion otherwise occupied by the stage being composed of a bed through which the hot pipes run, the whole held by a retaining wall. Other details, also the calculations upon which the foregoing data are based, he will find in my work on "Horticultural Buildings." F. A. FAWKES.

—In "Fenman's" case the main pipes from the boiler should be carried up the centre of the covered passage about 18 in. under the ground, and the branches from them should be raised up above ground in each house. The number of pipes needed in each house will depend on the temperature required, but for the purpose mentioned, probably a flow and return 4-in. pipe would be sufficient for such small buildings. Two boilers would be better than one, but they should have steam-tight valves between them, so that either could be cut off or removed entirely in case of necessity without interfering with the other. The boiler flue should be constructed of bricks for 2 yds. in length, and may then be made of say 12-in. drain pipes, jointed with cement, as they will give out more heat than a brick flue, and are not so liable to leakage of sulphur, &c.—R. HALLIDAY & Co., *Manchester*.

Christmas Roses indoors.—Not until I was enlightened by the instructive pages of THE GARDEN did I think of having Christmas Roses in pots. Now I have a display of them in a basket in the entrance hall—pure, lovely, and abundant, the admiration of visitors. When circumstances permit, I offer them a half-blown Rose as they depart, which is always received with lively pleasure. Hall! you small, sweet courtesies of life, for smooth do you make the way of it.—A. G., *Mid-Scotland*.

Wood varnish.—Is there any varnish for wood which will stand in the open air? Can anyone suggest a preparation for writing on Boxwood labels unpainted?—R. W.

TREES AND SHRUBS.

CATKINS AND PUSSIES.

It is very much to be desired that people should encourage in their gardens and about their shrub-

copse vegetation of all northern countries is made up of trees that bear these catkins in spring; but in consequence of their making their appearance at inclement seasons or of their colours being inconspicuous, they are apt to be

we have seen of recent years was the catkins covering the great trees of the Constantinople Nut in the gardens at Syon House last spring.

TREES NEAR DWELLINGS.

I AM glad to see that my remarks on this subject (p. 556, Vol. XX.) are approved of by one so capable of forming a correct opinion as Mr. Cornhill (p. 25). Attention should certainly be called to the manner in which trees are planted in the vicinity of dwellings, more particularly suburban residences. The portion of ground which surrounds these, either in or near towns, is generally somewhat restricted, and the way in which it is planted is often most unsatisfactory as regards the selection of plants. I have more than once observed in small front gardens, not more than a few yards square, several plants of the Spruce and Scotch Fir, the Oak, Ash, and other forest trees, some of them actually planted within a few feet of the principal windows. It can hardly be said that a knowledge of trees and shrubs is necessary in order to avoid the commission of such blunders as this. But in many instances it may be, as Mr. Cornhill says, done by some local dealer in trees and shrubs who is instructed to make the place look green, while by the exercise of a little forethought, and possibly the outlay of a trifling additional expense, suitable plants in the first instance might have been employed and set at proper distances apart. Trees and large growing shrubs should never, as a rule, be planted in situations in which they cannot attain to something like their natural development. If this maxim be kept in view it will necessarily exclude from town gardens, and from the grounds of many small suburban residences, such species as the common Spruce and park trees of large growth. There is an abundance of hardy trees and shrubs eminently adapted for the planting of gardens and grounds of all dimensions, small as well as large.

In forming plantations, trees intended to ultimately stand must be placed at distances which will admit of their due development; afterwards, if considered desirable to fill up the spaces left, in order to produce an immediate effect, it can be done with more common material, taking care to cut back or to altogether remove the latter, as the more valuable plants require the increased space. Deciduous trees and shrubs are generally found to succeed better near towns than evergreens, but still, many of the latter are found, with proper attention, to succeed tolerably well. All that is necessary is to make in the first instance a judicious selection of suitable kinds, and to avoid the planting of trees which naturally grow to a large size in confined or restricted situations, especially near dwellings. In the grounds of suburban residences of considerable extent even Conifers may, with every confidence as to their future success, be freely planted, but never without due consideration as to the dimensions to which they will be likely to attain in the course of some twenty or thirty years. A tolerably correct idea as regards this matter may be formed by an inspection of some of the many trees in this country which may have been planted about the time named, or even for a longer period, such as some of the many fine specimens which are to be seen of the Douglas Fir, *Picea Nordmanniana*, *P. Pinsapo*, &c., as well as the most ornamental of deciduous or park trees. For the planting of grounds of more limited extent in towns and elsewhere there are abundance of suitable species of medium growth to select from, evergreen as well as deciduous, such as the beautiful Lawson Cypress and its numerous varieties, together with such genera as the *Libocedrus*, *Thuopsis*, and *Retinospora*, all very ornamental; also various varieties of Yews, variegated Hollies, all of which succeed well in towns, and likewise some pretty varieties of Tree Box, Berberis, Daphnes, Euonymuses, and the pretty flowering Ribes, Spiræas, and Deutzias. In forming shrubberies, whether large or small, no kind of plant was at one time more extensively used than the common Laurel. But doubts may now be enter-



beries that modest kind of beauty which these catkins, "pussies," and "lambs-tails," as the country people call them, suggest. In early spring the profusion of these catkins, often laden with golden pollen, forms one of the most beautiful aspects of vegetation. Much of the riverside or

somewhat neglected in gardens—at least, as far as plantations and shrubberies are concerned—compared with things of a more showy character. Some of them, in addition to the charm of colour and graceful form, are delightfully fragrant. One of the most striking objects which

tained as to its being advisable to continue to pursue this practice. Our winters have of late abundantly proved that this plant is far from being hardy; it is certainly much less so than the Portugal Laurel, and it has in many situations suffered even more than the Laurustinus. The Aucuba is eminently a town plant, and has of late years proved itself to be quite hardy, at least in towns. But it must at the same time be remembered that the depression of temperature in towns is seldom so great as it is in the more exposed parts of the open country. It may, however, be worthy of consideration when shrubberies are about to be planted, whether such species as the common green-leaved Holly, the Tree Box, the Berberis Aquifolium, &c., might not with advantage be substituted in some measure at least for the common Laurel.

P. GRIEVE.

ORNAMENTAL KINDS OF ASH.

AMONGST our forest trees none are more variable than the Ash, the different varieties of which are almost endless, and the same may be said of the American kinds. The American Ash is, as a rule, lighter coloured both in foliage and bark than ours, but the colour varies a good deal in individual specimens. There being so many varieties of the common Ash, I will divide them into groups according to their peculiarities, and take those first distinguished by

Remarkable habit.—The Weeping Ash, from its peculiar manner of growth, is often used for covering, or rather forming, arbours, as, if supported, the branches may be made to extend horizontally to a great distance. Of this there is a form having bark of a bright golden colour, which is very showy, especially in winter. The Crested Ash (*Fraxinus excelsior cristata*) is a dwarf variety, often with fasciated Cockscomb-like stems, more curious than ornamental. Spectabilis, a fine form of the common Ash, is stouter and more upright growing than the type. Crispa or nana is a small-growing kind, in which the leaves are very dark green and much curled, in many cases surrounding the stems, as in *Salix annularis*. Globosa is dwarf and globular in growth, forming a miniature tree. Dimorpha is so small in all its parts as to form a twiggly shrub, but one in no way stunted in appearance.

Foliage distinctions next come under notice. Amongst these the variegated forms of Ash, as a rule, withstand the sun with impunity, being rarely scorched, however exposed. In *alba variegata* and *aurea variegata* the leaves are marked with white and yellow respectively. In *lutea* the foliage is wholly of a golden colour. *Heterophylla variegata* is a variegated form of a very distinct variety, in which the leaflets are generally united so as to form one large leaf. *Concavifolia variegata* has peculiarly concave leaflets. Other well marked varieties are—*angustifolia*, the leaflets of which are very narrow; and *heterophylla laciniata*, very much cut in the foliage. In *scopolendrifolia* the leaflets are blended into one, and cut into long, strap-like filaments. *Aurea* has golden, and *jaspidea* striped wood. In *verrucosa* the bark is as rough and rugged as that of the cork bark Elm, and in this respect very distinct; the foliage is like that of the common Ash. Of the American Ash (*Fraxinus americana*) we have a fine variegated form—*aucubetifolia*, the subject of the annexed illustration. *Juglandifolia*, *salicifolia*, *sambucifolia* are the names which explain the peculiarities of the species represented by them. *Cucullata* has peculiar hood-shaped leaflets. *Quadrangulata*, sometimes known as *tetragona*, is a fine, regular growing tree, the branches of which are conspicuously quadrangular, a circumstance which gives it a very distinct appearance. *Fraxinus lentisicifolia*, a native of Asia Minor, is a pretty species, with narrow, sharp-pointed and much serrated leaflets, and one that cannot be confounded with any of the foregoing. Of this there is a variety aspendulous as the common Weeping Ash, and one that forms a compact shrub not more than a few feet in height.

The above are but a few of the species or varieties of Ash that are to be met with—only a selection of distinct and well-marked forms. A full enumeration of them would occupy too much space and serve no useful purpose. The flowering Ash (*Fraxinus Ornus*, or *Ornus europæus*) is so well known as to need no description; yet, common though it be, it is a subject to which planters might well give more attention than they do, for about the month of May, when laden with floral plumes, it is really a conspicuous object.

ALPHA.

Chimonanthus fragrans.—A fine plant of this most deliciously scented shrub is growing here against an east wall, and has been in full flower since the second week in December. We cut the sprays of bloom to fill small vases for the drawing-room, in which they emit a delicious perfume and last a long time after being cut, provided the water is changed often and a small piece of charcoal is placed in the bottom of the vase. In summer the *Chimonanthus* is very effective as an ornamental wall plant, its pear-shaped leaves being of a delicate tint of green, and assuming a beautiful brown colour in autumn. I have grown this shrub upon several aspects, but I find that it does best upon an east or north-west wall. It flowers when young, but not so freely as when older. The plant here is very old, and has been cut down several times. Our present bush consists of young branches that have pushed from the old stem, and suckers which have sprung up from the roots. Suckers are produced freely when the plants get to a good age, or it may be increased by layering some of the ripe wood in early spring. It ripens seed occasionally, which is ready to gather some time in October, and may be sown in November in a mixture of loam, peat, and leaf-mould, with a sprinkling of silver sand to keep the whole open. When sown they may be placed in a cool pit or greenhouse until the young plants are ready to be potted off singly. Thus treated, they will grow away freely and soon be ready to plant out in a sheltered corner of the garden in nursery rows.—Wm. CHRISTISON, *The Rookery, Bromley Common*.

MARKET GARDENS.

THERE can be no doubt that the Kentish market growers are as a class very enterprising; they have a fine soil, great climatic advantages, and ample capital, and without that market gardening is uphill work; but they have something else, and that is first-class practical experience. Literally, most of these men are market farmers, and as such seem to show that farmers may become gardeners with better success than they now obtain, as mere agriculturists, but it would be wrong to come to any such conclusion. The practical knowledge possessed by the market grower is the product of many years' hard work; so is that possessed by the farmer, but both work on diverse lines, and whilst the market grower may become a successful farmer, the farmer will find that the conversion to a successful market grower is anything but an easy matter, and, indeed, he must show considerably more energy than farmers as a rule display; but these big market fruit and vegetable crops about Swanley are not the production of a year or two's conversion from Wheat and Mangold Wurtzel. They have been growing out of small proportions for many years, and as the demand for vast quantities of produce has grown so have these crops grown with it, and so will they continue to increase until that which now seems to us something enormous shall have developed into that which we should now regard as fabulous. Indeed our guide in a long tramp over these fruit growing regions, Mr. Cannell, who already seems to have largely imparted his own indomitable energy and perseverance into some of his neighbours, tells us that every year large breadths of copse are cleared off, and that those who do this work have the cleared ground for three years free of rental.

How significant all this is compared with the statement commonly put forth that farms in all directions that have been well cultivated for years are now tenantless. Perhaps it may be thought that it is an argument in favour of the extension of fruit and vegetable culture, but all counties are not Kent; all parts are not so near to the metropolises; and, not least, all farmers have not that practical skill, energy, and experience which the Kentish fruit growers have.

Soils and sites.—Of course, all through this district there is a large substratum of chalk, but then it has a deep upper surface of sand and clay, the latter becoming gradually mixed with the sand, and fertilised by cultivation and manuring, soon making a fine, productive, and holding soil. Even where the chalk comes nearer to the surface the result is far different from that seen on gravelly soils, which, however sweet and healthy, burn up frightfully during hot seasons. Chalk is always cool, and whilst its gradual incorporation with the soil is productive of good, the less gravel becomes infused into good soil the better. But a marked feature of the Kentish district is the exceeding variety of its slopes and aspects. Hillsides, indeed, are the most favoured positions for the cultivation of fruit, especially of Raspberries and Strawberries, and Mr. Cannell told us that the east is a particularly favourite aspect. Kent is so uneven that it has no plains, but one irregular series of hills and valleys, so that flats are nowhere, and that this unevenness of surface has much to do with the production of the wonderful fruit and vegetable crops grown there can be little doubt.

Fruit crops.—In the course of a long tramp over hill and dale we found that the chief fruits were Raspberries and Strawberries, the most favoured kinds of the former being Carter's Prolific (a first-rate sort) and Fastolf. Of these we often came across patches of from ten to twenty acres in extent, the rows about 4 ft. apart, and just now all pruned and cleaned ready for dressing; in some instances this was being done, and this was the routine of culture: In the first place, when all needless suckers had been taken out, the top soil, weeds inclusive, was drawn thinly away from the stools with hoes. This done, well decayed manure carted on to the ground was carried along the rows, and a fair dressing spread about the stools; then the plough was turned into the spaces, and three small shallow furrows turned over on to each side, quite burying the manure and weeds. In the spring a horse cultivator will be sent along the rows, pulverising, cleaning, and levelling the soil, and leaving it in excellent condition. One good result is the prevention of sucker growths out in the spaces; these are wanted in the rows, but not out of them. The Strawberry is largely represented by such kinds as Eleanor, Sir Charles Napier, and even the ancient Elton Pine. Some readers may, perhaps, think that these are not the best kinds in cultivation, but if they were growers of many acres of this fruit, and at a distance of twenty miles from market, they would soon learn that it is of the first importance to grow kinds that will travel well. Many tons of the fruit go into the preserving vat, and these are good jam-making kinds. Still farther, we may take it for granted that the men who grow so well also know which, for them at least, are the best paying kinds. Walking across one huge breadth of Sir Charles Napier, we noticed that here, as in all other fields, the space between the rows has been split by the plough, and the shallow furrows on each side turned over towards the plants. This was done in the autumn to kill weeds and runners. Now in one part men are hard at work chopping the soil away from the plants with hoes, and they will follow by turning the spaces between the rows over with forks somewhat roughly, for all work here is piece-work, and no great pains are taken to leave it neat; but presently the horse cultivator will be sent along, levelling and leaving the surface loose and in clean condition. Then, when the bloom appears will come huge loads of long manure, that will be spread amongst the plants, to be washed by the spring rains, and this will keep the fruit clean, and act as a top dressing.

Potatoes.—Mr. Cannell directed attention to a hill some mile or so distant, and asked if we could make out the long ridge which ran along the sky line. That, he said, was a vast store of Potatoes—"Champions, sir; Champions! That is the sort for this district, and a splendid crop they yield. Now that big pit belongs to Mr. John May, a famous grower, and the first to introduce the Champion into this district. He has made a lot of money out of it, and so have many other farmers; but we will go up and see this pit and the ground on which the Potatoes were grown;" and thus begins our perambulation. We found this pit to be of about the third of a mile in length, and to contain many hundreds of tons weight. The field on which they were grown, and on a portion of which Potatoes are grown every year in rotation to Corn crops, is a huge upland, and not many years since was a copsewood. Indeed, as we tramp across the now broad fallow track there is here and there presented black spots in the soil that look like little oases of peat or bog, but really are the sites of the charcoal fires of days gone by. This one field, perhaps one of the largest in the kingdom, has an area of about 550 acres, and to the eye in one direction it seems boundless. That it is superb Potato soil there can be no doubt, as the samples

prohibited absolutely its use in all the Government schools. It is also said that no regular smoker ever took the highest degree in Harvard, and the authorities there are inclined to look into it.

Keeping properties of flowers.—Mr. Muir does good service by telling us of the lasting properties of Poinsettias. Allow me to supplement his statement by saying that that queen of Christmas flowers—*Eucharis amazonica*—lasts well ten days in water in a cool place and dark. I have just now nearly 100 blooms of it in water waiting their turn for bouquet making. I may add that double Primroses keep equally well under similar circumstances.—R. GILBERT, *Burghley*.

LOW NIGHT TEMPERATURE.

Will you do me the favour to publish this communication in THE GARDEN? It refers to a discussion that has taken place between Mr. David Thomson, editor of the *Gardener*, and myself.

I uphold low night temperatures for Vines, and Mr. Thomson upholds high ones, or has at

a late number of the *Gardener* Mr. Thomson says:—

Was not Mr. S. sometimes a successful competitor when he practised warmer treatment for Muscats? It occurs to us that he was; at all events, we remember seeing his Muscats at the Manchester September Show in 1873 lying not very far from the winning examples, such as those magnificent bunches from, &c., &c. This was the year after Mr. S. had taken to low temperatures.

I can only surmise from this extremely vague and doubtful statement that Mr. Thomson wishes to convey that my exhibit at Manchester in 1873 was a failure because we began that year to practise low temperatures more systematically, but his recollection fails him. I did exhibit on the occasion he mentions a collection of fifteen sorts of fruit, and won the first prize of £30, the only exhibit entered then by me, and here is the report of the *Gardeners' Chronicle* of it, Sept. 6, 1873: Mr. Simpson, Wortley Hall, contested this prize, eventually winning. *In this collection the quality of the Black Hamburg and Muscat of Alexandria stands out well*, these being backed up with good Smooth Cayenne and Enville Pines, Noblesse Peaches, Elruge Nectarines, Figs, and Melons." Both these Muscats and Hamburgs were cool grown, the Muscats being from the same house from which I furnished an account of the low temperatures to the *Gardener* in June the same year, accompanied by a bunch which the editor of that journal said, in a note appended, was "as perfect a sample of thorough 'setting' as could be imagined." I have also taken prizes for Grapes since. Mr. Thomson has gone extremely far out of his way to find testimony of this kind, and the above will show he has misrepresented it as well. He has no more reason for supposing that my exhibiting has anything to do with my temperatures than I have to suppose or insinuate that he has retreated from the field of Pine-apple culture because more successful men have taken his place who adopt an entirely different practice from that which he recommends. "It occurs" to one to ask where Mr. Thomson was himself on all the notable occasions he speaks of—at the last Manchester show, for example, where certain Grapes and Pines did good service in a miscellaneous fruiterer's collection, but did not venture on to the boards alongside the "winning examples." Now for his temperatures.

ABRIDGED EXTRACTS FROM THE *Gardener* CALENDAR AND Fruit Culture under Glass.

FORMER high TEMPERATURES.

As soon as the buds have fairly started give 5° more, making a point of rising to 60° when the young shoots are showing their bunches. By the time they are in bloom it should range from 65° to 70°, which is sufficiently high as a night temperature in the earlier months of the year.—*Fruit Book*. The Grape Vine—Temperature, 1872.

Muscats coming into bloom may have the heat raised to 75° at night during mild weather. . . A rather high temperature is most generally practised with success, and under such treatment I have never seen a failure.—April, 1871.

The night temperature in succession houses that have been thinned, &c., may be kept at 70° at night, unless in exceptionally cold and windy nights. . . Starting the fires to prevent the heat from falling below the night temperature named.—April, 1872.

Ditto, 1873.

Succession houses in various stages. . . 70° at night is yet

ABRIDGED EXTRACTS FROM THE *Gardener* CALENDAR.

RECENT low TEMPERATURES.

Permanent Vines now in bloom. . . All superfluous bunches should be removed before the blooming period, and the berries thinned, except in the case of shy setters. . . The night temperature for these (shy setters) should be 65° in mild, and 60° in cold weather! (The Muscat is included by the calendar writer among shy setters, and specially mentioned at times.—J. S.)—March, 1879.

Muscats should be kept at 70° during the blooming period; Hamburgs at 65°.—April, 1880.

Succession Vines, the bunches of which have been thinned. . . let the heat drop to 60° or 65° by daylight, according to the weather.—April, 1878.

Ditto, 1879.

Later Vines, in whatever stage of progress, should



Eucaea-leaved Ash (Fraxinus americana eucaebifolia). (P. 73.)

seen on the pits being opened for market demonstrate. Having plenty of means, growers like Mr. May can hold over till the smaller men have got rid of their small stocks, and then his go into the Boro' Market in big lots of several tons at a time. Artificial manures are largely used, as indeed in such vast breadths they must be. After the plants are well up the horse cultivator, with the cutters set wide is sent up between the rows, and these cutters, going deep, loosen the soil right under the plants, so that the tubers when they expand find beneath them a loose dry bottom. This deep hoeing is held to be one of the secrets of successful cultivation, and of the production of clean healthy crops. Brussels Sprouts were the largest grown green crops, and the stocks wonderfully fine and even. Generally, however, there was by no means that abundance of this class of vegetables that is found in Middlesex, where the gardens look singularly green. Probably the Cabbage tribe is not a profitable market commodity if grown too far from the place of consumption.

A. D.

Bad news for Tobacco raisers.—After a careful investigation by disinterested scientific men, the French Government has concluded that the use of Tobacco interferes with the mental faculties and general ability to study, and has

least done so lately in his own monthly, and been anything but complimentary to the advocates of low temperatures. In replying to Mr. Thomson, I, following his example of referring to the practice of others, turned his own *Gardener* calendars, written by himself, upon him to prove, notwithstanding his present advocacy of high temperatures, that he is a low temperature man himself—that, in short, he is in the "same boat" with me exactly, and has embarked voluntarily with me in it. This, of course, Mr. Thomson tries to repudiate now, and says that he wants "none of the praise that may ever be accorded to" the low temperature system of Grape growing, which, by the way, he has not earned, and I now purpose showing not only that all I have said about Mr. Thomson is true, but also that he is a decided convert to the cool system, and that his conversion has taken place within the last few years, since I and others pointed out the evils of high temperatures, and this I shall show by the *Gardener* fruit calendars, leaving your readers to judge of the consistency of Mr. Thomson's attitude in the present discussion. But first of all let me correct some of Mr. Thomson's misrepresentations regarding myself and my practice. In

sufficient for all *Grapes* between the blooming and colouring process. Range the temperature for these (*Muscats* in bloom) at 75° when the weather is mild.—April, 1876.

The glass may range about 70° when sun-heat can be shut in early in the afternoon.—April, 1877 (transition year.—J. S.).

Keep up the temperature in succession houses where *Grapes* are swelling off. . . . The night temperature . . . may be kept at 70° at 10 p.m. and 6 a.m. . . . *Muscats* may be kept a few degrees warmer. Drop a few degrees if the weather be cold and sunless.—May, 1876.

NOTE.—It need hardly be stated that a'l gardeners regulate their temperatures by the weather.

The above extracts show the gradual decline of temperature that has been going on in the *Gardener* calendar since the low night temperature system began to find adherents, and it is interesting to compare the temperatures of April, 1871 and 1872, with 1881. The difference for Vines at "whatever stages of progress" is 10° and 15° at least, and low temperatures are extolled even higher in 1881 than high ones ever were in 1871. Comment is unnecessary. True, Mr. Thomson states that his instructions of last April were an "indefinite slip" of the pen, and thinks every one will see it so. It so happens, however, that the figures of that particular April calendar, and about half a column of matter written to explain the great advantages of the low temperatures given (passed in the manuscript and in the proofs, and only "cancelled" under pressure nine months after they were printed) are the only things altered from former years, and we should like to discover any intelligent reader who accepts the "indefinite slip" explanation. Does anyone, asks Mr. Thomson, think he was going to recommend a drop to 55° in April when he recommended 70° the month before March? The reply is, No; nor does he do that. His March temperatures, as he well knew and states, refer to *pot Vines* "required to ripen early" and finishing their crop, while his April temperatures refer to other permanent and later Vines "at all stages of progress," and the April figures "fit in" to a nicety with the month following (May), where a rise of exactly 5° is recommended on the 55° of April for the same Vines. "If the thermometer is at 60° at 6 a.m. it is high enough, except for *Muscats*, which we do not like to see in a cooler temperature than 65° after the 1st of May." If the April temperatures were a slip, what is the purport of this passage, may I ask? The truth is the temperatures of the *Gardener* calendar have dropped so fast and so steadily lately, that readers began to fear where they would stop before the figures fell to a point as much below that of low temperature advocates as they had once been above them.

The temperatures given in April, 1881, mean, according to Mr. Thomson's regular instructions and rules for regulating the temperature, that 55° is enough for Hamburgs in flower or any other stage, and 60°, or less, enough for *Muscats* to be kept "a few degrees" warmer. This represents the drop for 1881. As like as not there might have been quite as heavy a drop in 1882!

In his present strait Mr. Thomson is not above invoking the aid of a number of other gardeners—the Johnstones, McKelvies, Hammonds, &c., whom, to read certain books on fruit culture, one would never have suspected to have existed, hitherto the characteristic features of some authors being that their opinions are sufficient for everybody, nobody else being worth mentioning, but the Johnstones,

&c., are now not only not ignored, but their *help* is even sought in the first difficulty. It is a sign of the times that other people's opinions are beginning to be acknowledged. It is a pity anyone should profit by the teachings of others and seek to deny it or to accord that toothers which has been so frankly extended to themselves at all times.

I may add in conclusion that I am in no way anxious to prove that other people have adopted as low temperatures as I have done. I have gone as low as I dared chiefly to prove what a wide margin of safety there is under the hard and fast lines laid down by the high temperature advocates, like Mr. Thomson formerly, and it is only high fire-heat temperatures I object to. If as great a change has occurred in the direction of low temperatures generally as appears in Mr. Thomson's calendars, a great and general conversion has been effected and much waste prevented. 5° is a great average drop in a mean temperature, and 10° and 15° is enormous. Yet this is the drop in Mr. Thomson's calendar, and he does not recommend either an increase by day or a longer season of growth to make up for it, evidently thinking, as I do, that low night temperatures do not retard much, although one of the arguments he uses in his present strait is that they do. Most people will, however, prefer the *deliberate*, and no doubt the conscientious, instructions of the calendar until at least the past four or five years are also "cancelled." Correspondents have been enquiring of late about growers in the north who have been practising low temperatures successfully on the quiet; they may read with enlightenment the above parallel columns.

Wortley.

J. SIMPSON.

P.S.—My temperatures, like Mr. Thomson's, are minimum or morning temperatures, and have always been given as such. At the origin of this discussion I confined myself to the *setting period* of *Grapes*, but Mr. Thomson, in the November number of the *Gardener*, extended the question to the period of growing and ripening also, which necessitates my giving his calendar for various stages. I am asked, also, how I get my temperatures down to 50° in the morning in May. A reference to my tables in the *Gardener* of June, 1873, will show that down to the 10th of May the thermometer was only once above 55°, and once as low as 52°, with a deep heap of fermenting materials inside the house; without these the temperature will often fall below 50°.

A NEW CATALOGUE OF HARDY PLANTS.

SOME of our correspondents are interested in a new catalogue of hardy flowers. In all these things a large number of the public think the printing is a simple business, that can generally be done by "next Saturday," and mainly by wishing for it! The truth is, the printing and compilation of a catalogue of this sort is an expensive and tedious affair. What we want to ask is, "Will our readers help the work in two ways?" by lending us their note-books and catalogues to aid us in the compilation of a new list, and are they willing to subscribe for its printing? The old catalogue took, as near as we can remember, about four times the amount of time and expense that it has returned. A catalogue made by a tradesman pays him by the sale of his stock, whereas it need not be said that this does not. Also, will any of our correspondents say how the catalogue should be changed? Would it be useful to give the botanical authorities? Our own opinion is that it should be much fuller, and embrace trees; but then it would probably become a book. We shall welcome any ideas on the subject.

We regret that, owing to pressure on our space, many interesting communications are again omitted this week.

GARDEN FLORA.

PLATE CCCCXII.—CATTLEYA AUREA.*

STRONG as the resemblance is between this species and *C. Dowiana*, their native habitats are far apart, *C. Dowiana* coming from the neighbourhood of Costa Rica, while *C. aurea* was found several years ago by Mr. Butler associated with *C. gigas* on the Cordillera, to the west of the Upper Magdalena, in New Granada. The Messrs. Backhouse, of York, for whom Mr. Butler collected, always treat with the greatest respect any Orchids collected by him. Having, comparatively speaking, but little knowledge of Orchids, he collects, when in flower, what to him look like good "things," and invariably his "good things" when sent home pay their way. An importation of *Cattleyas* collected by Mr. Butler was sold in Stevens's rooms in 1876. There were two species, one being described as "yellow," the other "fiery-looking"—two very Butlerian descriptions. I have no doubt that those who purchased at that sale will find the "yellow" to be *C. aurea*, and the "fiery-looking" *C. gigas*. The plants of *C. aurea* were small and not in good condition, and this may somewhat account for the long time it has taken to flower it. Messrs. Backhouse believe that *C. aurea* will flower freely as it gathers size and strength.

CULTURE AND POSITION.—The cultivation of *C. aurea* should, like its native habitat, be identical with that of *C. gigas*. It may be grown in either basket or pot. If the pot system is adopted, the pots must be at least two-thirds full of drainage; the compost should consist of fibry peat mainly, to which may be added small broken potsherds and charcoal and Sphagnum. Water at all times must be given at rather long intervals, but especially from November to February when only enough is needed to keep the roots from perishing. I have seen plants made to flower by the withholding of water at their roots for several weeks together, but the after behaviour of such plants has not been of a very satisfactory description. Rather than follow such a system it is far better to keep the plants in a position where they will at all times get a maximum of light, sunheat, and air; such a position may be found in the Mexican house, or at the lightest end of the Cattleya house. Through the winter air should be given whenever the external air is above the freezing point. The night temperature should range from 50° to 55°, unless the weather is very severe, when an occasional fall of 5° will do no harm, provided the house is on the dry side. The plants will commence to break in February, when a few degrees more of heat may be given and the atmosphere kept more moist. Through March and April the sun will carry the temperature to a great height, but no harm will happen if the floors are well sprinkled and a good circulation of air kept up. Through May and June thin shading on bright days will be required. In July, if strong enough, the plant will push up flowers from the increasing growth, and when expanded a more shady position must be afforded. A fortnight after the flowering season is over is the best time to repot, as soon after the current year's growths will send out from their bases a large number of roots, which will continue to grow and throw out lateral roots for eight or ten weeks, by which time the resting season will have arrived.

J. C. SPYERS.

[This beautiful Orchid has recently flowered finely in Mr. Potts' collection at Hoole Hall, Chester, where it is successfully cultivated. A flower which was sent from this collection to Mr.

* Drawn from a plant which flowered in Messrs. Backhouse's nursery, at York.



J. C. Stevens' auction rooms in Covent Garden, last November, represented a different form from that represented on the plate, but equally beautiful.]

CATTLEYA DOWIANA.

THIS very beautiful Cattleya is, and always has been, very rare. In its wild state it is restricted to a very small area; so small indeed that Mr. Low's collector, who had the first haul, managed to secure almost every plant that had attained to the flowering state. The whole of the later importations are undoubtedly seedlings that have sprung up and grown since the first large importation. Some of the plants that come over are, indeed, so young that a few years even under the best system of cultivation must pass before flowers can naturally be expected. This fact has been quite overlooked by some growers, who, finding their plants do not flower, have hastily condemned C. Dowiana as a shy bloomer. Youth is a most excellent thing in imported Cattleys, and those who have these small plants of C. Dowiana to grow on may console themselves that it is much easier to do so than to establish and keep in good health large plants which may have long since passed the meridian of their existence.

C. Dowiana is best grown in teak baskets. A layer of crocks and charcoal should cover the bottom, over which should follow a compost of fibry peat, small bits of potsherds and charcoal, and a little Sphagnum. Suspend the basket from the very first in a light airy position in the Den-drobium house, keeping the tips of the foliage about 1 ft. from the roof glass. Like many of the Dendrobiums, C. Dowiana revels both in the early morning's and late afternoon's sun. Water will be required about once a week through February, March, and April, but often during the next three months. In August, when the plant will be both making up its growth and flowering from the same, the roots must be kept continually moist. When the flowering is over less water will suffice, and if the plant requires more root room that is the time to give it. Do not tear the roots from the old basket, but after syringing out all worn-out compost, drop basket and all into one two sizes larger, and fill up the spaces with the aforesaid mentioned compost. Many new roots will be sent out after this, and the drier the compost is kept so long as the bulbs do not shrivel, the better will these roots like it. It is at this stage that amateurs who go entirely by the look of the compost make a mistake that has injured many a C. Dowiana. They cannot believe that the roots will progress in such dry material, so they water away till the plant finds itself obliged to start growing. The winter treatment of such a plant so as to induce the young growths to make up properly has yet to be discovered. C. Dowiana will rarely start growing prematurely if it is always grown in a light, airy position, and if after it has flowered water is given only often enough to prevent the bulbs from being much shrivelled.

J. C. SPERS.

HARDY ORCHIDS.

A QUESTION was recently asked in THE GARDEN as to whether any book on the culture of these interesting plants could be obtained. That no book on the subject exists is a misfortune; but however desirable it may be that such a book should be at the service of those who need it, I question much whether we are ever likely to obtain one containing the result of the author's experience. What we want, and what there ought to be no difficulty in getting, is that those who have been cultivating hardy Orchids should record their experience in the pages of THE GARDEN. The simplest method, and one that would commend itself to most cultivators, is to plant them out-of-doors, but here the inexperienced are stopped at the threshold owing to their want of knowledge as to the best soil and position in which they ought to be planted. The common Meadow Orchis, for instance, is not to be found wild

everywhere, and many would like to grow it in their gardens. This and many other kindred species succeed well in almost any garden soil if planted amongst Grass, and they seldom require any attention except to keep the Grass from smothering them. We grew it nicely in a wild corner of the garden amongst fine Grass, and it was interesting to watch the plants flower and increase in strength year after year until the soil where they grew had to be removed, and the plants were overlooked and unfortunately destroyed.

I find in the first volume of the "Horticultural Register," published in 1831, that a Mr. Thomas Appleby, of Horsforth Hall, grew certain species very successfully in a newly formed Rhododendron bed. The species are not mentioned, but the compost was peat of a very sandy character, and the surface was covered to the depth of 2 in. with Moss. Thus situated they are said to have thrown up stems from 15 in. to 18 in. high. Mr. Appleby states that when Moss is laid on the surface to this depth, "a frost scarcely ever penetrates through it in winter, and in this manner Fuchsias, Lobelias, Salvia indica, the more tender alpines, plants, Cape bulbs, such as Ixias, Gladioli, &c., and similar plants, as are usually classed as cold frame plants, stand the winter and flourish."

The section of hardy Orchids which I have studied most are the Cypripediums. We have grown for many years all the different species obtainable, and have been very successful with the following in pots: The best of all is the well-known C. spectabile. Plants of this increase in strength year after year, grown in good peat with a little leaf-mould added. They may be potted any time after the leaves and stems die off. Next to it C. pubescens is most desirable. It requires to be wintered in a cold frame, and placed in the greenhouse to flower, although it would flower equally well in the cold frame. We use loam with the peat. C. Calceolus also grows and increases freely, and is interesting as being the only Lady's-slipper indigenous to our own country. C. aculeis is easy enough to grow and flower, but it does not increase with us, and dies or degenerates after the third year. I fancy this would succeed well planted out in moist peaty soil. C. macranthum increases in size potted in a compost of equal parts turfy loam and turfy peat, with a little leaf-mould added, but it does not flower well. C. candidum may also be added to the list of those that are easily grown in pots. It is very pretty, and takes its name from the white lip, the sepals and petals being purplish brown. C. guttatum is also a pretty species, but however good the crowns may be when imported it is very difficult to get them to start into growth in the spring. C. arietinum (the Ram's-head Lady's-slipper) is a distinct and rare species, but I have not been able either to grow it well nor flower it—probably because the plants have not been good to start with. I have now, however, some exceedingly good tufts of it, and hope yet to be successful with it.

Orchis foliosa ranks amongst the finest of all hardy Orchids, and it is very easily grown in pots. As a rule each crown doubles itself annually, so that it may be speedily increased. We pot it in peat and loam and treat it the same as the Cypripediums. Mr. Ware, of Tottenham, grows and flowers a very pretty species of hardy Orchid, with which we have not been successful, viz., Habenaria fimbriata. It flowered once with us. It is dwarf in habit; the flowers are paler in colour than those of Orchis foliosa, and they have a prettily fringed lip.

My own experience with the whole of these hardy Orchids is this: that they succeed better (if pot culture is determined upon) in a cold frame than in a greenhouse, and that if suitable positions could be found for them out-of-doors they would do better there than anywhere else. I believe that if the surface of the ground where they are planted could be covered with Moss or some similar material, they would succeed well. If this could not be done, then some of the finer Grasses might be established over their crowns.

J. DOUGLAS.

FLOWER GARDEN.

GOLD-LACED POLYANTHUSES.

I HAVE carefully read the articles that have appeared from time to time in THE GARDEN respecting these flowers, and am rather surprised at the way in which Mr. Barlow has taken up Mr. Brockbank's well-meant remarks. I think the latter's criticism of Sunrise a very fair one; and I do not think it will do it any harm, and certainly did not merit the reply which Mr. Barlow gave. I, for one, say let Sunrise be distributed among the growers, and let us see what it can do when grown side by side with the old ones. My opinion of Sunrise is that if George IV. is shown as Mr. Beswick, of Middleton, showed it in 1880, Sunrise will have to give way; and if we could only get the grand old Kingfisher to show his plumage once more on the show table, they would all have to give way. Mr. Horner said in a recent number of THE GARDEN that he thought Kingfisher was lost to cultivation. I do not think so; I believe it to be in existence in a quiet spot, from where it will emerge to delight us all some day not far distant. In your issue of January 14 (p. 27) Mr. Barlow states that he had received a private letter from Mr. Brockbank, but which had failed to give him any information respecting the two mysterious florists (perhaps Mr. Brockbank does not wish to create any ill-will except that they had frequent opportunities of seeing Sunrise in his garden; and further he states that he is in a position to tell Mr. Brockbank that no florist who had judged at any Polyanthus show had ever seen it in his garden. At the Auricula show, held at Manchester in 1880, I and others of my profession were discussing the merits of the different Polyanthuses, and one assured me that he had seen Sunrise in Mr. Barlow's garden, and, while sticking up for the seedling, he at the same time admitted that George IV. could beat it. Mr. Barlow says that Sunrise bloomed for the first time on the seedling bed in 1880. That is calculated to mislead your readers by making them think that it was only exhibited last season, when it carried all before it. It was staged in 1880, as I have said, when it had to give way. If, however, it came from the bed of seedlings to the show, that was against it; but my opinion is that it had been grown along with his other sorts, for they did not look to have had any better treatment than the seedling. There was another seedling shown at the same show by Mr. T. Mellor, of Ashton-under-Lyne, which won the first prize for the best red seedling, and I believe it was bought by Mr. Brockbank. The raiser told me that he had great hopes of it. I have not heard of it since. What has become of it? I hope that the hard words that have passed respecting this seedling, doubtless on the whole an excellent one, are ended, and that they will not deter either of your correspondents from sending papers to THE GARDEN on both Polyanthuses and Auriculas for the benefit of many.

A POLYANTHUS GROWER.

BULBS AFTER FLOWERING.

AT this time of year, when bulbs are being forced into flower for decorative purposes in almost every garden, it may not be inopportune to ask what becomes of all the bulbs that are imported, for if only a tithe of them were kept alive we should have more than sufficient for every purpose, yet except in gardens where the expenditure allows of imported bulbs being bought yearly, it cannot be said that we are surfeited with either Hyacinths, Tulips, Narcissi, Jonquils, Crocuses, or Scillas. The conviction is, therefore, forced upon us that in too many cases as soon as the flowering season is over the rootlets are thrown aside as worthless, yet it has been proved over and over again that if the foliage is carefully preserved the majority of bulbs will flower annually for years, while in the case of others they only require a season of rest to recruit their strength, and, with the exception of those forced rapidly, or very far in advance of their natural season, there is no reason why they should not flower for many years in suc-

cession, for, unlike tropical plants, that require certain atmospheric conditions which it is impossible for us to give in our temperate climes, nearly all of these lovely plants come to the greatest perfection under a climate similar to our own. True, our bulbs of home growth might make but a sorry display in competition with bulbs from Haarlem and other places famed for their growth, but have we given anything like the attention to bulbs which the Dutch growers do? No; in fact, it is only in the case of those who make certain classes of plants either a hobby or a study that the required attention is given. I need only refer to the Lily of the Valley as an example. Home-grown roots of this are now flowered in quantities, and of a size both as regards leaf and flower that has never been excelled by plants from imported bulbs. But even if we fail to grow bulbs for exhibition, that is no reason why we should not enjoy their lovely blossoms in our ordinary garden soil, and under the same conditions of culture as are common in the case of ordinary garden plants. Where one person makes exhibiting his aim hundreds grow plants simply for the enjoyment which they afford, either in the form of early cut flowers, or as decorative plants for the conservatory and dwelling rooms. To these I would commend the following plan: As the bulbs cease flowering, harden them off, keeping them watered and tended as carefully as they were before they flowered. In April and May take them out to the mossy banks and sheltered corners of the semi-wild garden; or where choice shrubs are planted thinly, there dig large holes, fill them with rich soil, and plant the bulbs moderately deep; give a good watering and leave them to perfect their foliage. A little top-dressing in autumn is all they will afterwards require, and they will send up yearly spikes of bloom, which, if not so large as the first produced under glass from imported bulbs, will nevertheless make a welcome addition to our list of hardy flowers. J. G.

Linton.

LOBELIA CUTTINGS V. SEEDLINGS.

WHERE flower gardening with what are termed summer bedding plants is still followed the blue Lobelia is indispensable from the fact that it is nearly the only plant with really blue flowers that conforms to the requirements of a bedding plant. My experience is decidedly in favour of raising Lobelias from cuttings, for although seedlings give less trouble and make a good display, they are as a rule but transient, and the plants are always more straggling than those raised from cuttings. In fact, seedlings are frequently quite done by September—just the pleasantest time of the year in which to enjoy a flower garden. In order to make their display as lasting as possible, cuttings should be carefully prepared and planted in deeply cultivated soil, and not allowed to suffer from drought; there need then be no fear of their falling before the frosts of autumn out off the tender subjects, and so bring the display to an end. The mode we adopt is to keep a few dozens of small late-stuck cuttings in pots during the summer in a partially shaded position, and to cut the heads of bloom entirely off as fast as they are formed. In autumn they will be dense little tufts of healthy shoots. They may then be shifted into 5-in. pots, and wintered on a shelf near the glass in a cold house. In February each plant will yield a hundred or more cuttings, or cuttings may be struck from the outdoor plants and wintered in the same way; some shallow pans answer well for this purpose, and sometimes we have cut the bloom off a few dozens of plants in the flower beds in September, and potted them up in October covered with healthy shoots, and they have done well. In taking cuttings we like to have supply enough to afford about two good batches in February. They are dibbled thickly into shallow pans filled with light sandy soil, and placed in a brisk moist heat where they will be found to be rooted in about ten days and fit for transferring to a cooler pit, until thoroughly rooted, when they may be potted off singly into 3-in.

pots, or planted in boxes 3 in. apart each way. A temperature of about 55° suits them well until rooted, when they may be transferred to cold frames and kept quite open as the days get warmer in spring, protecting them securely against frost at night. As they push up flower shoots every one must be cut off, for, like other bedding plants, every bloom made before planting is at the expense of the summer display, and with Lobelias the object should be to get dense little tufts of healthy growing shoots by frequent stopping. Little fear of a good display need then be apprehended; and as plants from cuttings do not make long straggling shoots like seedlings, they should be planted proportionally thick. There are many varieties of the blue bedding Lobelia, and nearly every grower has his favourite sort, but I believe a good strain of speciosa, selected and kept true by cuttings, is as good as any. The difference in result is more attributable to treatment than to the variety. Speciosa is probably the parent of selected stocks that pass under various names, *L. pumila*, so useful in carpet bed arrangements, is naturally of a dense tuft habit of growth, but I prefer cuttings to seedlings of all the varieties I have ever grown. J. G.

CREEPERS.

"AN AMATEUR" (p. 28) may have a choice of three ways of covering his divisional line of wire netting. First, use the following climbing annuals: Canary Creeper, *Nasturtium majus*, *Convolvulus major*, and Sweet Pea; mix the seedswell, and sow the mixture in April or May along the base. The plants will rapidly cover it, and will require some little trimming to keep them within bounds, as well as some training right and left. A second width of netting above the first to increase the height to 6 ft. would produce a much finer effect and do more justice to the plants. Second, make a selection from the following herbaceous plants: Monkshood, white Japanese Anemone, *Larkspur*, *Lobelia cardinalis*, tall *Phloxes*, *Spiraea palmata*, *Aruncus*, and *venusta*, *Dahlias*, *Hollyhocks*, *Eryngium amethystinum*, *Boconia japonica*, and *Verbascums*; plant them close to the netting. They all bloom during summer and autumn, and such as require it may be readily tied to the wires, a convenience all will appreciate who have had much experience in sticks as supports. They all grow 3 ft. high and upwards, and should have a small border in front well dug and manured, as all of them are gross feeders. This planting will be effective during the season, and should be planted rather closely, and interspersed with groups at irregular intervals of *Gladioli* and such *Lilies* as *tigrinum*, *chalcodonicum*, *speciosum*, *auratum*, *croceum*, *pardalinum*, *testaceum*, *cracum*, *Martagon* and *Martagon album*, and *candidum*. Third, trench and heavily manure a width of 8 ft. in front. The turf may be replaced so as to leave about 1 ft. from the netting ungrassed. Fix permanently and strongly a double row of netting, one above the other, then plant Clematis six hybrid varieties, climbing Roses nine varieties, Passion flower (*P. cœrulea*) two plants, Honey-suckle three varieties, Virginian Creeper two varieties, *Ceanothus* two varieties; in all, twenty-four plants, which will allow 5 ft. to each.

As to the arrangement, it should be natural and without formality. A few Moss Roses might now be added. They have such straggling branches, that they are best among something else, which will hide their nakedness. All should be trained into each other, interlacing as much as possible. The knife may be used when required, but only for thinning and reducing to reasonable dimensions. All shearing formality should be avoided, so as not to give the appearance of a well-clipped hedge. Cover the trellis as quickly as possible, and then allow the creepers to throw out their spray-like branches to wave in the wind, and thereby delight the artistic eye with the natural grace of things naturally grown. Whichever of these three plans "Amateur" adopts, he should place at one end a good clump of Pampas Grass, and at the other one of the Flame flower, or Hollyhocks. The last

should not be confined to a single stem, but allowed to send up several. I have omitted all mention of *Tropæolum speciosum* in the above lists, because it is so Bohemian in its habits, that it could not be confined to the narrow base of wire netting, and also because its requirements seem so peculiar, and as yet only partially understood, that success in growing is very doubtful. EDWIN JACKSON.

Llandegai, Bangor.

THE ROCK GARDEN.

HYPERICUM CORIS is a compact, erect-growing semi-shrubby species, with clear yellow flowers terminating the stems in umbellate cymes. It grows about 9 in. in height, and is a very free bloomer. The leaves are bluntly lanceolate, about $\frac{3}{4}$ in. long. This species must not be confounded with an inferior kind often sold for it, viz., *H. empetrifolium*. It is one of the best for the rock garden, sowing itself freely in sandy soil in a sunny position. *H. cuneatum*, a newer kind, is as small in habit as our British *H. humifusum*, but quite distinct. Rather than keep close to the ground it has a tendency on account of its semi-shrubby character to form a cushion. The stems first take an upward direction, and then arch to the ground. The leaves are obovate, about one-third of an inch long. The flowers, which are borne at or near the extremity of the stems, are pale yellow and of good size; the colour of the open flowers contrasts beautifully with the dull red outer surface of the petals of those yet in bud, a colour which is also well shown along the margins of the expanded blooms. It enjoys similar treatment to *H. Coris*, and should be raised from cuttings. *H. reptans*, an even more prostrate kind than the preceding, is very suitable for overhanging a ledge in a sunny position. It is best seen from below, for the large bowl-shaped flowers have rather a tendency to turn groundwards than to the sun, and one seldom sees an erect expanding flower. The blossoms occur singly near the apex of the stems, seeming to nestle amongst well furnished stems of pale green egg-shaped leaves about $\frac{1}{2}$ in. long. It is increased by division. *Lepigonum rubrum* should, I think, be more commonly grown as a rock plant than it is. Annual or biennial, it grows freely enough in a moist sunny position in sandy soil, sowing itself and giving no trouble. When the sun shines it opens its hundreds of pretty star-shaped flowers. *Linaria origanifolia* (the Marjoram-leaved Toadflax) is a plant not so common as it ought to be. Its relative, *L. alpina*, is such a rambler that our admiration of it is liable to be marred if too much of it is allowed to grow. Any soil or position suits it, and it sows itself. *L. pilosa* forms a close covering of reniform leaves, as would a Liverwort, from which peep a few pale rose flowers almost inconspicuous. *L. pallida* seems to be a stronger growing, larger flowered sort; both enjoy a moist soil in any position. *L. hepaticifolia*, a free-flowered kind, is a capital plant for rambling amongst stones. It grows rapidly, flowers abundantly, and I think it would look well in a cottager's window hanging down the sides of a pot. T. D. HATFIELD.

THE WOOD SORRELS.

THE genus *Oxalis*, once a favourite with amateur horticulturists, has of late years been somewhat neglected. Upwards of 130 species, chiefly natives of South Africa, have been figured and reported to have been under cultivation in Europe. By far the larger number of these are contained in the beautiful monograph of the genus, published by the elder Jacquin in 1794, from specimens cultivated in the Imperial Gardens at Vienna. At Kew there are about 50 species. They are grown in pots and pans, though a set is placed in the herbaceous collection during the summer. Those who visited the gardens in February or March last will doubtless remember the display which these plants made in one of the greenhouses, and if, instead of being grown in small pots crowded together, they had been treated more liberally, the show of flower

would have been finer. I remember seeing a few pans of a yellow *Oxalis* (*O. flava*) in, I think, the greenhouse at Burford Lodge; they were suspended from the roof just above the plants on the stage—quite balls of sulphur-yellow flowers and very lovely. I have seen the pink and the white varieties of *O. floribunda* treated in the same way, and with the most satisfactory results; indeed, many of the species of *Oxalis* might be used as basket plants for the conservatory and greenhouse in early spring. The large and beautiful flowers of *O. speciosa*, *O. grandiflora*, *O. tricolor*, *O. variabilis*, &c., are, in my opinion, unsurpassed as dwarf spring-flowering plants, whilst the singular and often strikingly beautiful forms of the foliage of many of them are in themselves very ornamental.

Besides the value of these plants for the decoration of the greenhouse in spring, they are equally effective if planted in exposed positions on the rockery during summer, flowering as they do at various times through the year, and always forming dense little tufts of green, bronzy, or silvery leaves. Of course many of the species are too tender to live out-of-doors through our winters, and these it is necessary to protect during the cold season. The bulbs or tubers formed by most

pretty yellow flowered kinds, *O. scandens* is a remarkable *Oxalis* from its habit, implied by the name, of climbing, otherwise it is of little horticultural interest. Some of the species produce very large and succulent tubers, and one of them, *O. Deppei*, was brought forward as a substitute for the Potato, but although its cultivation was carried on to a considerable extent in France, it proved a failure.

B.

Carpeting plants.—What I particularly want to master is the cultivation of plants which spread and carpet the soil without taking so much nourishment out of it as to prevent Lillies, Irises, Daffodils, and plants of similar habit from growing underneath, and pushing through the carpet in their flowering season. I think the introduction of beds of evergreen, creeping, and cushion-forming plants, intermixed with plants like Sweet Williams, biennial Stocks, Campanulas, Antirrhinums, &c., which retain their foliage through ordinary winters, will do more to popularise hardy plant gardening than almost anything.—J. D.

Chrysanthemums from seed.—The facts stated by "W. H. O." (p. 42) prove nothing. Mr. W. Thompson, of Ipswich, and several Continental seedsmen, indeed, do offer seeds of Chinese, Japanese, and Pomponé Chrysanthemums for sale, and I fancy seeds have been ripened much nearer home than the south of Europe or Algiers, or even nearer than the Channel Islands. Chrysanthemum plants intended to produce seeds require special culture, and should be in bloom not earlier than the end of February or beginning of March. Very little real improvement can be made by growers of any flower until they can themselves ripen seeds of it in their own gardens, and this is what I wish to do, and hope to do this next summer. In buying seeds you merely purchase other people's ideas. What I want to do is to give practical expression to ideas of my own. Can "W. H. O." help me?—ANONYMA.

Canarina Campanula.—Can any of your readers who are well acquainted with this curious and interesting old half-hardy herbaceous plant (which was figured in "Botanical Magazine," vol. xiii., t. 444, so far back as the last century) inform me whether there is more than one variety of it, or not? The habit of my plant materially differs from that of those I saw at Kew when there recently, my plant being of extremely, indeed almost inconveniently, long and straggling habit of growth, requiring to be tied down or twisted back to keep it within any bounds; whereas the Kew plants seemed of compact and bushy habit of growth. They also seemed considerably more free blooming than mine. The flowers, however, seemed decidedly smaller in bell and paler in colour than those on my plant, which, though few in number (only three or four each year), are of a considerable size, and of a rich, deep brown colour.—W. E. G.

Raising Clematis coccinea from seed.

—Two years ago I procured from Mr. W. Thompson, of Ipswich, some seeds of *Clematis coccinea*, and placed them on the surface of the mould in a pot about three parts filled; above them there was a thin layer of the same mould, and the pot was then filled up with silver sand. In this state it remained for about twelve months, during which the whole was kept damp by occasional watering. At the end of that period one only of the seeds had germinated. This one plant grew about 1 ft. high and then was put into a larger pot. The mould in which it had grown was then sifted, and most of the remaining seeds were discovered and made to undergo the same treatment that they had previously received. This was done about four months ago, and now (January 11) the plants are showing their heads just above the surface, and probably nearly all of them will grow. I much doubt if any advantage is to be gained by stimulating them with heat. My seeds have been kept cool, but under glass; had the pot been sunk in the exposed ground the seeds would probably have remained dormant till they were warmed

into life by the sun's rays in spring, as happened to some seeds of the *Rubus deliciosus* that I had wintered in that way.—S. B.

Sisyrinchium grandiflorum may do well in a peat bed and in sheltered nooks for aught I know, but here it does best in the stiffest soil in full exposure, and now, in quantity on a carpet of variegated *Myosotis*, it is lovely, the latter being effective by-and-by.—T. S.

INDOOR GARDEN.

RESTING EUCHARIS AMAZONICA.

THERE can be no question that moderate rest is good for most plants, but where many err is in the way in which they bring it about. To dry off *Eucharis* so much as to distress and injure the leaves is a great mistake, as not only do they suffer, but the roots feel it likewise; the bulbs are considerably weakened, and their ability for blooming is thereby very much lessened. To rest them properly they should be moved to a cooler house than that necessary to grow and flower them in, and there they should be kept drier at the roots for a time, but never to such an extent as to cause the foliage to flag. Managed in this way, they go to work with a will when placed again in heat; but resting, however good and necessary, is of no avail unless the plants are previously well grown, as flowers cannot come unless they are put there first by skilful culture and good treatment, which the *Eucharis* appreciates and pays for better than most stove subjects. Being a native of the banks of the Amazon, and therefore a half aquatic in character, it must have plenty of water, but what it dislikes is a stagnant condition of the soil. This may be avoided by free drainage and the use of an open, porous mixture for potting; the best perhaps for this purpose is peat and loam, or the latter and leaf-mould, with a good sprinkling of pulverised horse droppings or old cow manure, and plenty of sharp sand to prevent any binding together. In a medium of this kind the roots, which are large, can ramify freely, and there is never any fear of its becoming waterlogged. What assists the *Eucharis* very much is weak liquid manure, such as may be made from sheep or cow manure, and a little soot; this when the plants are in active growth stimulates them, and causes the foliage to become very large and good in colour. Some of the finest I ever saw in these respects were at Gunnersbury Park. There they are or were plunged or stood along the back of one of the Orchid houses, where they get shade, plenty of which seems requisite during the summer for this genus of stove plants.

J. SHEPPARD.

Monstera deliciosa.—The fact of this growing in a cool house will doubtless surprise many. I gave a description of one planted on the back wall of a vinery here. During the coldest months of the year this is kept with only just fire-heat enough to keep the frost from the other occupants, and yet the *Monstera* is in luxuriant health. My statement as to the possibility of keeping a native of Mexico under such cool treatment was questioned. I need therefore only refer to your illustration, which exactly represents our plant, only ours is obliged to be tied back to the wall, and has not the advantage of a pool of water for its large fleshy roots to luxuriate in; nevertheless it produces foliage in abundance, large spathes and singular looking fruits, which, when ripe, are delicious. It is unquestionably one of the noblest of fine foliaged plants, and requires just such a position as that indicated in the engraving. I would be quite at home in an intermediate house, or with the majority of Palms that add so greatly to the appearance of conservatories, or with Tree Ferns and other noble forms of plant life.—J. GROOM, Linton.

Waste of fuel.—The remarks made by Mr. Crane (p. 38) in regard to stoking and the management of fires are much to the point. If his instructions were followed out, much less fuel would be wasted. Heat is allowed to escape up the chimney



Oxalis fruticosa (type of the shrubby species).

of them render this an easy task, as they may be taken up and kept in sand, or even paper bags, until the return of warmer weather, when they may be replanted in a rich, loamy soil in their former quarters.

Under pot culture any rich soil will suit them, but they must have plenty of drainage and moderate pot room. During summer they should be placed out-of-doors, and if possible plunged in ashes. Here they may be left to take care of themselves, though it is never advisable to allow them to have too much rain. Some have recommended placing them in a dry situation in summer, but such treatment for a moisture-loving plant I consider to be a mistake. In the autumn the pots should be transferred to a cold pit or frame, and plunged in ashes as before. Here they soon commence to grow, and by the beginning of February many of them will be in flower. During their growing season a free allowance of liquid manure should be given them. They should be repotted as soon as they have lost most of their leaves. Some of the most beautiful of the species in addition to those already mentioned are: *O. crenata*, *O. cernua*, *O. asinina*, *O. lutea*, *O. enneaphylla*, *O. lanata*, *O. pectinata*, *O. sanguinea*, *O. versicolor*, and *O. Bowei*. Besides the greenhouse kinds there are several shrubby species cultivated in stoves, one of which (*O. sensitiva*) is a pretty and interesting plant; it has leaves not unlike those of the sensitive *Mimosa*, and, like them too, are sensitive to the touch. *O. fruticosa* and *O. Plumieri* are

by leaving the dampers out; whereas, were they kept nearly in so as to regulate the draught, the heat would be kept about the boiler, and the combustion would be much slower and more regular, with the result that less fuel would be required to do the work. Much may also be done to economise coal by having tight-fitting furnace and ash-pit doors, which, by shutting out the air below when necessary, steady the burning and stops the waste of heat. With good doors dampers are not so much required, as they answer almost the same purpose. It was stated some time back that a foul or sooty kettle would boil quicker than a clean one. I know from experience, however, that such is not the case; and anyone who has had anything to do with boilers and the heating of boilers must have observed how much more rapidly

two is a great investment, at which no one should flinch, as the extra outlay soon comes back through the saving it effects in the coal bill.—J. SHEPARD.

DIEFFENBACHIA IMPERATOR.

THE Dieffenbachias, like Crotons, Dracenas, and Coleuses, are becoming so numerous that it is a somewhat difficult matter to make a selection of the best; but we should in all cases include the handsome kind represented herewith—one that has recently been introduced from Columbia by Mr. B. S. Williams, of the Victoria Nursery, Upper Holloway. It is a bold and stately plant, with broad leaves from 1 ft. to 1½ ft. in length, with a delicate pea green ground colour, exquisitely

Messrs. Sutton are really doing wonders with the following flowering plants. Let us first take

Primulas, which in such numbers as may be found here are not readily forgotten. Ruby King, deep blood red, is quite a distinct kind and very attractive; its flowers in the early stages of development are generally somewhat pale, but as they mature the ruby colour displays itself; it is a perfect gem in its particular shade of colour. Reading Pink is also a charming novelty, and will doubtless become a favourite on account of its exquisite colour, compact and free-flowering habit; the flowers are rich salmon in colour. Pearl is a beautiful white Primula, a selection from a number of seedlings raised at Reading. It differs from White Superb in being much larger and more beautifully fringed. The habit of the



Dieffenbachia imperator.

the water gets hot when the apparatus is new or the flues are fresh cleaned. Soot is a powerful non-conductor, and the less there is of it on a boiler the better. Flues should, therefore, be swept frequently and kept free from it; and to prevent its rapid accumulation it is a good plan, where it can be had cheap, to use a large portion of hard locomotive coke with the coal, as that kind of coke gives out little or no smoke, but a very strong heat. A greater loss perhaps than all is that which often occurs through an insufficiency of piping, as then to keep up the requisite temperatures fires have to be driven, and that is what occasions the waste; besides which, plants suffer, as the water having to be made so much hotter in the few pipes, the air in the house warmed by them is never so sweet, moist, and wholesome. Pipes cost but little in the first place, and an extra row or

blotched and marbled with several shades of greenish yellow, as well as pure white, the whole forming a beautiful combination of colour—soft and pleasing, and rarely met with in cultivated plants. This Dieffenbachia has now had a fair trial in gardens, and is found to be a plant of easy culture, and one which shows its true character in a young state, as well as when in a mature condition.

W. G.

PLANTS IN FLOWER AT READING.

A VISIT to Messrs. Sutton & Son's nursery at Reading is highly interesting even at this season. It is really surprising to find there such vast quantities of delicate flowers in full bloom in mid-winter, and one and all in the best of health.

plant, too, is all that could be desired. It is very floriferous, the flowers being arranged in a pyramid well up above the leaves. Rosy Queen, both single and double, is an interesting variety, and amongst semi-doubles Prince Arthur is a very fine salmon kind, large both in flower and trusses. Crimson Hybrid, white and pink, has a sturdy habit and good constitution, and there are many others equally good, including some belonging to the Fern-leaved class. One house, a span-roofed one, is devoted to novelties, which are growing and flowering superbly, but as they are unnamed, no useful purpose would be served by alluding to them further than to say that amongst them are some excellent kinds both as regards colour and form.

Cyclamens are well grown in this nursery, dozens of plants, each carrying when I saw

them, nearly a hundred blooms, being in pots of comparatively small size. Cyclamens require generous treatment. The majority of the bulbs which I saw were of last year's sowing, and pictures of good health. On shelves were hundreds of young plants for next season's flowering, all in seed pans. Reading Gem is a grand acquisition, and one which ought to be in all collections; its flowers are large, the petals very broad and pure white, tipped with rosy purple; habit very dwarf. Amongst special hybrid Cyclamens are many striking kinds well diversified in colour. The strain of plant Cyclamensis is very showy, the flowers being unusually large and bright, and the leaves beautifully silvered. Amongst these the following were conspicuous, viz., *giganteum roseum*, flowers large, purplish rose, leaves beautifully marked; *giganteum roseum superbum*, a charming variety, and quite unique in colour; *giganteum roseum album*, not so large as those just named, but distinct and pretty; *Phoenix*, intense fiery crimson; and *stratum*, the last very handsome. There were also many other choice kinds—some pure white, others deep crimson, all beautifully in flower. In short, this establishment has long been celebrated for its fine strains of these and similar flowers.

Cinerarias and Calceolarias.—Cinerarias when fully in flower form an imposing feature. They are sown and grown on in the usual way until the end of September, when they are shifted into their flowering pots. Great care is taken of the foliage, which must not be tampered with; on the contrary, it must be kept healthy, from first to last watering overhead being avoided. One house is entirely devoted to plants in 6-in. pots, and another to plants in 3-in. pots. Of Calceolarias there is also a fine collection of healthy plants, which were shifted into their flowering pots in December; a long range of pits is likewise entirely devoted to them.

Piotees, Carnations, Polyanthus, and Auricles are also grown in great numbers in this nursery—indeed, all kinds of florists' flowers, as well as Lilies and other bulbous plants, to all of which much attention is paid.

J. CLARKE.

SHORT NOTES—INDOOR.

Lily of the Valley.—Would this do for force a second year? I see in THE GARDEN of January 13, 1872, that some have forced it for several years in succession. I should, therefore, feel obliged if some one who has tried the plan would inform me how it answers.—A. D.

Imantophyllum miniatum.—I should be extremely obliged if anyone could tell me how to cultivate this. Though mine bears many flowers and grows vigorously, the flowers are small and particularly poor in colour, and the petals too open. All this I should like to improve.—S. C.

Pergularia odoratissima.—Will some of your correspondents kindly give me a hint as to how this should be grown? I have recently potted mine (having bought it about six months ago), and have it in my stove, but it does not seem to grow very well nor look very happy.—F.

Violets not flowering.—Our Violets, though quite healthy, have flowered very sparingly this winter compared with last, although the treatment has been in every respect the same. I think the wet weather of July and August prevented the maturation of the crowns. Hence they grow well, but do not flower.—J. C. C.

Salvia patens in pots.—When at Bryn Glas, in Monmouthshire, last autumn I was much pleased with some fine pots of this *Salvia* which I saw in bloom in the conservatory. They were large bushy plants, with stems covered with flowers for 3 ft. or more in length, and so handsome that I intend to try a few in this way during the coming season.—J. MUIR.

Amaryllids at Chelsea.—Messrs. Veitch have fitted up a new span-roofed house wholly for the accommodation of Amaryllids. The central bed, which is well raised up to the light, is heated by means of hot-water pipes, and filled with some hundreds of bulbs, each of which is throwing up two or three massive spikes, which, when in flower, will make a fine display. On the side stages are batches of hybrids, crosses from the finest kinds, both English and Continental. Raising seedlings is a tedious operation, but the success already achieved in the case of Amaryllids induces one to expect something very good from these later attempts to improve these gorgeous flowers.—J. G. L.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

VERY good arrangements of foliage alone may be made now when flowers are scarce. A tall vase is handsomely dressed with a few leaves of *Acanthus*, *Aspidistra*, and *Alexandrian Laurel*, with a frond or two of some rather large Fern, such as *Pteris tremula*. Such an arrangement, which has the advantage of being very durable, except, perhaps, as regards the form, may be varied by the addition of some one important flower, such as an *Imantophyllum* or *Amazon Lily*, or an *Orchid* of graceful habit. The *Alexandrian Laurel* (*Ruscus racemosus*) is one of our most precious plants for foliage with cut flowers in winter. In large vases we use its graceful arching growths their full length; smaller sprays are convenient for table bouquets, and the little lateral twigs all that can be desired as foliage for button-hole flowers. It is a true winter plant, at its best from October to March; cut branches will last for six weeks in water. One of the most durable of flowers in winter is *Lapageria*; it may be prettily arranged in white china with a tangle of *Smilax sarsaparilla*, another long enduring subject. Buyers of flowers in London would do well to remember this lasting quality of *Lapageria*; it is dear to buy, but will live ten times as long as most flowers. Such a bouquet will last from a month to six weeks, only wanting an occasional change of water and careful dusting. A good effect has happened by the almost accidental placing of two flower decorations on a drawing-room table. Towards the back of the table is a large potful of *Hyacinth Grand Lili* (one of the best decorative kinds), a pale grey-blue mass of flower about 1 ft. through. Near it and seen partly against it is a glass holding branchlets of the variegated broad-leaved *Japan Euonymus*, with leaves broadly banded with warm white, leaves of a large-leaved and largely marked variegated *Ivy*, some all yellow-white, and some shoots of yellow *Jasmine*; a mass of pale warm colour, with points of direct pale yellow—a delicate and happy contrast to the grey-blue mass beyond.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

CAMELLIAS in varied colours will now give an abundant supply of bloom, by means of which many distinct arrangements may be made. Unless the plants are very large, a great length of stem cannot consistently be cut with these showy and beautiful flowers, or the plants will be deprived of valuable growth. Stems a few inches in length may, in many cases, be secured without doing much injury to the plants if due regard is paid to cut only those growths that can be spared, selecting such as may be straggling or any that are taking the lead in strength of wood to the detriment of weaker shoots. Camellia flowers always look best when at least two or three leaves are retained. Wiring should only be resorted to in cases of necessity—not adopted as a general rule. Florist's gum (liquid gum arabic) is always useful in the case of these flowers; a little of this placed around the base of the blooms will oftentimes hold them together longer than they otherwise would be. A somewhat flat receptacle is the best in which to arrange them, or one with a trumpet arising from its centre. Sand well moistened and covered over with either good green common Moss or some tufts of *Lycopodium* would give a very good base on which to arrange the blooms. This keeps them better in position than water. A few small seedling Ferns might be dotted here and there to relieve the otherwise somewhat formal look of the Camellias. Where a trumpet-shaped glass rises from the centre a piece or two of *Myrsiphyllum* twined around the stem look well. A spray or two of *Chorozema Chandleri*, in blossom now, might also be used in conjunction with or independently of the *Myrsiphyllum*. This is a good lasting flower in a cut state. As a finish to the top, white Roman *Hyacinths* or

Spirea japonica would be useful with a few pieces of *Epacris*, or even the latter by themselves would be sufficient, using two or three distinct colours. The sweet-scented *Carnation Miss Joliffe* is one of the best of its class at this season as a cut flower. Small spikes of *Paper-white Narcissus* are also extremely useful for the same purpose. Lily of the Valley will also be valuable in this direction, and can now be better depended on than earlier in the year, the spikes being altogether stouter and more lasting.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Aralias.—Though the varieties of *Aralia* fitted for the flower garden are not numerous, there are amongst them some half dozen that are in every way well suited for summer decoration out-of-doors, and two that have proved to be perfectly hardy, having stood unprotected in the grounds here during the two last severe winters; these are A. Sieboldi and A. Sieboldi variegata, both of them introductions from Japan, and presumably therefore natives of that country. The large bright glossy-green and finely cut foliage of Sieboldi stands out conspicuously at any season of the year, but particularly so in winter when deciduous trees are leafless, and if this were its only merit it would be ample to justify the recommendation of it to extended culture, but it is also one of our most effective summer flowering plants, being especially well suited for lawns, either as a centre or terminal plant, or to break up the formality of stiff geometrical arrangements of bedding plants. The variegated kind, alternated with the green, makes a fine bed, but they should not be planted closer together than 4 ft.; therefore the bed should be large and preferably round in shape, and an appropriate undergrowth for the same is *Salvia argentea* or *Gnaphalium lanatum*, and for winter *Sedum glaucum*. The other varieties that do well for summer planting only are A. papyrifera, A. heterophylla, A. macrophylla, and A. sambucifolia, all of which are well adapted for use as single specimens, the foliage being displayed to best advantage when so used. If whole beds of these are planted they should be at such a distance apart that the foliage of each plant stands clear of that of its neighbour; of course this long distance planting necessitates the ground being furnished with low growing plants of suitable kinds, of which there is no lack. The varieties here named propagate readily from cuttings made of ripened wood, taken off with a "heel," inserted in sandy loam and placed in heat. A. Sieboldi we have propagated by cutting up the stems as Vines are propagated. Plunged in a bottom heat of 70° and covered with a bell-glass, they strike root as quickly and successfully as Vines.

Bedding succulents.—The uses to which these have been lately put in our flower gardens have undoubtedly contributed to the refinement of taste that has taken place in that department, and by a judicious selection of varieties, and using them in reasonable proportion to other kinds of bedding plants there can be no doubt that they will long continue to exercise the same favourable influence. The kinds that are most valued here are those that produce the best effects and are the easiest wintered and propagated, as, for instance, *Agave americana* variegata, propagated by root suckers which are thrown up freely when planted out; *Echeverias*, many varieties, the best being *secunda glauca*, *glauca metallica*, *pumila*, and *sanguinea*, all of which produce offsets freely, which quickly root in any dry atmosphere and in any temperature short of actual frost. *Echeveria metallica*, *E. farinosa*, and *E. Peacocki* are extra choice kinds, which though somewhat tender cannot be dispensed with; these varieties are most readily increased by seeds. *Kleinia repens* and *K. tomentosa* are invaluable for marginal lines in succulent arrangements; they are propagated by division of the roots in spring, and may be wintered safely in a cold pit. Several kinds of *Mesembryanthemum* are indispensable for clothing the ground beneath the taller succulents, by

far the best being *M. cordifolium variegatum*; other good kinds are *cordifolium*, *caulescens*, and *incandens*, all easily propagated by cuttings in warmth. *Pachyphyton bracteosum* and *P. pulcherrimum* are amongst the most curious of succulents, and being of small growth are well suited for dotting over the outer lines of beds; they are propagated by offsets and cuttings. Of *Sempervivums* the best for edgings and groundwork are *calcareum*, *montanum*, and *arachnoideum*, all hardy, producing offsets freely. *S. canariense*, *Donkelaari*, *phaloides*, and *cuneatum* are low dense growing kinds, propagated by offsets and seeds. *S. arborescens*, *arborescens variegatum*, and *arborescens atropurpureum* are generally termed Tree *Sempervivums*; they are of a branching habit of growth and attain a height of from 18 in. to 2 ft. They are propagated by cuttings. Perhaps *Sedums* and *Saxifragas* should not be classed as succulents; but as many of the low growing varieties of these are seen to best advantage when serving as a cushion or setting for many of the succulents just mentioned, I name them, not their least recommendation being that they are quite hardy, and that they continue effective the year round. This latter advantage has tended to strengthen our partiality for succulent bedding, seeing that the only thing to be done when winter approaches is simply to remove the tender and half hardy succulents and substitute small shrubs, and the beds are at once furnished for the winter. Those who wish to adopt this kind of bedding in the coming summer should now set about the preparation of the plants by one or other of the ways indicated. On how to arrange them to the best advantage suggestions will be offered as the planting out season approaches.

Sowing.—A first sowing of Sweet Peas should now be made, and to ensure continuous flowering a rich, deep soil is essential. Some make the earliest sowings in pots, and place them in warmth to germinate, transplanting to the open ground when the young plants are 2 in. high, but our experience is that the check caused by such transplantation is greater than any advantages gained by thus sowing them; we therefore prefer to sow them at once in their permanent positions. The following may also now be sown for cutting purposes in any warm nook in the open ground, viz., *Mignonette*, *Clarkias*, *Collinsias*, and *Larkspurs*. As soon as they are well through the ground they will need guarding against the attacks of slugs, but besides thinning out this is about all the attention which they will require. Every kind of sub-tropical annual that it is intended to use this season should now be sown in warmth. Castor-oil plants suffer so much through transplantation from seed pans, that it is best to sow the seeds singly in small pots. The same remark applies to *Maize*. Of *Cannas*, put two seeds in a pot. *Solanums*, *Wigandias*, *Ferulas*, and all other kinds do quite well when sown under ordinary conditions, i.e., in pans placed on a gentle bottom-heat, and covered with glass till germination takes place. After that and till the seedlings have got a firm hold of the soil water must be sparingly applied, or damping off will be the result. All stock plants of whatever kind kept over from last year ought now to be potted. *Dahlias*, *Salvias*, *Cannas*, and *Marvel of Peru* are among the more important of the kinds alluded to.

General work.—Prune Roses, shrubs, and trees, and complete any planting of these that has yet to be done, tying up or placing supports to the same. Dig and manure all vacant beds and borders. Cut back and nail in climbers. Keep spring flowers well firmed in the ground, protect them from vermin, and the tender and more highly prized kinds when necessary from injury by frost by covering the beds with tiffany or mats resting on hooped sticks. Turn gravel walks, mend Box edgings, roll lawns, and prepare any new additions to the same for sowing with Grass seeds by working the soil fine and level. A rich soil is not desirable, but if very poor a dressing of soot, or wood ashes, or both mixed, will be found to be an excellent manure.

INDOOR PLANTS.

T. BAINES, SOUTHWATE.

Potting.—Preparations should now be made for potting stove plants. Plants grown in heat need warm soil, and on no account should potting be carried out with soil that is in an over-moist condition. When so used it becomes a close, compact mass wholly unsuited to the healthy formation of roots. It is, however, possible to err in the opposite direction, the result of which is that in watering afterwards the whole does not get equally moistened. The best way is to keep all potting soils in the open air, getting as much as is likely to be required under cover a sufficient time before it is used to admit of its getting in proper condition. Therefore, enough loam, peat, leaf-mould, and rotten manure to meet the demand for the general potting of stove plants should now be placed where it will be secure from wet, yet exposed to the air. In order to warm it sufficiently for use it may be spread out on the brickwork over a boiler or on a flue; where it is inconvenient to do that, it may be warmed in the baskets set on the pipes in the house wherein are grown the plants to be potted. The time for the general spring potting will to some extent be ruled in the case of stove plants by the amount of heat kept up. The advantage of being able to use a brisk heat early in the season is that many plants of an almost continuous blooming habit, such as *Gardenias*, *Allamandas*, *Ixoras*, *Dipladenias*, *Anthuriums*, *Scutellaria mocciniana*, and others can be regularly brought on to give a lengthened succession. In this way *Clerodendrons*, *Stephanotis*, *Bougainvilleas*, and *Eucharis* can be had quite double the length of time in bloom that is possible where only a low temperature is maintained, the season being far advanced before such plants can come into flower.

Pitcher Plants.—Unless there is a brisk heat at command it is useless to attempt the cultivation of *Nepenthes*; but where they are grown whatever they require in the way of additional pot room should be given at once before active growth commences. *Nepenthes* are spare rooters, and the roots, being brittle and black in colour, are easily hurt unseen. In potting, even so much as removing the drainage material is as well avoided, but if the soil has got into a decomposed, pasty condition it should be washed from the roots by syringing it with warm water. If this is done carefully, the old material can be got rid of without so much as a root being broken; a 2-in. shift is usually enough for plants that are in vigorous health. Fill the pots half full of drainage, using nothing but the fibrous matter from a good Orchid peat with all the earth removed, and an equal portion of chopped Sphagnum, with a few crocks intermixed; pot lightly and soak with tepid water immediately. In the case of *Sarracenias*, it is important that they should have the whole of the soil removed every year, as from the quantity of water which they require, it is certain to get unfit for the roots, which are not so brittle as those of the *Nepenthes*. They should be potted without delay, as if not done before growth commences the destruction of the roots is certain to cause the young pitchers that are coming on to be deformed. I have found this time of the year to be the best for potting all *Sarracenias*, except *S. Drummondii* and its varieties, which should be done about July or August. One-half good fibrous Orchid peat to an equal part of chopped living Sphagnum, with a liberal addition of sand and some crocks, is the material these plants require, and plenty of water to saturate the soil at once. This condition must also be regularly maintained afterwards, as they are true swamp plants, and dislike their roots being dry. *Sarracenias* increase readily by division of the crowns, and in the case of the taller growers that form rhizome-like stems, the latter may be cut into pieces 1 in. or 2 in. long. These will form crowns and in time make good plants, but it is not well to make these stem cuttings too small, or they will take several years afterwards to acquire their full strength. See that the plants are free from brown scale before potting; sponging with clean water is the

best plan I have met with for removing the scale. *Cephalotus follicularis* succeeds best in a warm greenhouse temperature. Like most other plants that grow in continuously moist places, it cannot bear to be dry at the roots. It thrives in equal parts of fibrous peat and Sphagnum, with the addition of sand and crocks broken fine, filling the pots half full of drainage. It requires a bell-glass over it in order to grow it well.

Alocasias.—These should be potted before growth begins, especially if any division of the crowns is to be made. They bear dividing freely, the extent to which this is to be carried depending on the size of the plants required. Single crowns are very useful; the distinct form and colour of such kinds as *A. metallica*, *A. Veitchii*, *A. Lowi*, *A. intermedia*, and others of like character having a good effect when dispersed amongst the other occupants of the stove. Most of the species when strong produce young bulb-like offsets that should at the time of potting be taken off and placed singly in small pots. They mostly require soil similar to that which is used for Orchids, viz., fibrous peat, Sphagnum, crocks, and in addition some sand. They are surface rooters; consequently the pots may be filled from one-third to one-half with crocks, according to the size of pots used.

Myosotis disitiflora.—This Forget-me-not makes a pretty pot plant, and will bear a little warmth without becoming drawn. Even if the plants were not potted in autumn they may be taken up now. Seedlings that have had plenty of room to enable their getting strong may be put singly in 4-in. or 5-in. pots, securing good balls of earth so that their roots are not much broken in removal. Give them plenty of water and a light position.

Ferns.—The more compact growing species of *Adiantum*, including *A. cuneatum*, *A. assimile*, *A. gracillimum*, and for large baskets *A. farleyense* along with some of the *Davallias*, such as *D. bullata*, *D. elegans*, and most of the tasselled varieties of *Pteris serrulata*, all make excellent basket plants, and where employed alternately with flowering subjects have a much better effect than is obtainable by the use of blooming plants alone.

Poinsettias.—Plants of these that have done flowering should be dried off in a moderately warm house, and then be stowed away where they can be kept dry and not too cold, for though the roots when dormant and in a dry state will bear a much lower temperature than requisite when growing, yet if too cold they will suffer.

Hyacinths, Narcissis, and Tulips.—More of these should be placed in heat to come in late; they will now require little forcing, and usually flower the best through coming in nearer their natural time. Still keep such plants near the glass, as by this means only can the leaves be prevented from attaining an undue length, in which state they never look well.

Zonal Pelargoniums.—Easily managed as these are, they are often seen in indifferent condition in winter, producing much more leaf than flower. If the plants have been well prepared, they will bear a temperature of 58° or 60° in the night if located in a light house and kept close to the glass. Some of the double varieties, such as *Wonderful*, *scarlet*, and *Madame Thibaut*, pink, are the most durable, but they do not open freely with less heat than that just named.

Achimenes.—When well grown *Achimenes* are second to none for the dense masses of colour which they present. In hanging baskets suspended over the paths in a cool stove, or intermediate house there are no flowering subjects equal to them, and in no way can the often bare, unfurnished appearance of the roof of a plant house be so well altered for the better and with a minimum of interference with the growth of the plants underneath as by the use of such baskets. But when employed a little forethought should be exercised so as to see that the size of the baskets bears some proportion to the dimensions of the house in which they are to be used. Large baskets

are very effective when well filled, but they look out of character in a small structure. Baskets to be so used should be made of either copper or galvanised wire; if the latter be painted it improves their appearance, and the wires should not be too far apart, or the Moss with which they need to be lined protrudes in a way that looks untidy. Green Moss, such as is to be met with on the ground in woods, I have found to be the best. A couple of inches of this should be used, as less will not keep the soil within from washing through when water is given. After the baskets are thus well lined, they want filling with ordinary potting soil, moderately light, and the plants should be dibbled in about 2 in. or 3 in. apart over the whole surface bottom as well as top. Previous to this the roots ought to be started by putting them closely in shallow pans in a mixture of sandy loam and leaf-mould, giving them ordinary stove treatment; after the shoots are about 2 in. high they should be placed in the baskets as above, keeping them well up to the glass and in not too moist an atmosphere, for upon their making close, compact growth will depend their after appearance. A portion of the roots for pot culture should now be similarly started, with others kept dormant for a time yet, so as to give a succession of bloom.

PROPAGATING.

THIS is a good time for propagating *Dracænas*, both by means of roots and stems, where required in quantity; if struck now they will be sufficiently advanced for the bright sunny weather of the summer months to assist in colouring the foliage, which will not be the case if struck late, as then it will be necessary to push growth on as rapidly as possible to get fair sized plants before winter. For propagating purposes choose plants that have grown tall and leggy—the taller, indeed, the better, as the stem will then cut up into a greater number of pieces. In the first place cut off the top of the plant, and put it in as an ordinary cutting, leaving sufficient stem attached to it to form a base, and do not remove too many leaves, or when rooted it will have to be grown on for some time before it becomes effective; whereas if struck with as many leaves as possible as soon as it is potted it becomes a good dwarf plant. The tops should be put in small, well drained pots in a soil composed of sandy peat, with just a slight amount of loam well mixed up together. It will be necessary to stake any of them that may be top-heavy. After potting they should be kept in a close case in the stove and plunged in a bottom heat of from 80° to 85°, in which they will soon root. After that they should be hardened off without delay and shifted into larger pots.

Another way, and one often followed, is to put new Cocoa-nut fibre in the case, and in it insert the cuttings instead of putting them in pots, but where this is done they should be kept close for a few days after being rooted and potted, just to give the roots a start in the new compost. When the tops are taken off they should be thoroughly cleaned before putting them in the case, as if there be but a few insects on them in the confined atmosphere in the case, they will increase rapidly. Cuttings of the stem may be put either in a close case or in a house without any extra covering, provided a good growing atmosphere and a bottom-heat of about 85° are maintained. In either case the same principle is carried out, viz., to cut the stems up into lengths of about 3 in. or 4 in., and the thick fleshy roots into pieces about half that length; this done, lay them in rows in Cocoa-nut fibre, leaving about half an inch between each row of stems, and when so placed cover them to the depth of 1 in. with fibre, levelling it down, when all will be finished. Except in a very dry place, no water need be given, as excess of moisture causes many of the pieces to rot. The young plants will soon push up freely from every joint, and when they have made four or five leaves they should be removed from the parent stems. Most of them root quite independently of the old stem, and if cut off carefully can be at once potted, when if kept close for a few days they soon become established. The old stems

can be laid in again as before, when they will push into growth, but only weakly and irregularly compared with the first effort.

Stem cuttings of *Dracæna Goldiana* will not grow, but it may be propagated in this way: When the plant has attained a sufficient height, take off the top and put it in as a cutting; after a time the old plant will push out another shoot from the bud immediately below the cut part, which when strong enough may be taken off and treated as the top. The rate of increase by this method is slow compared with stem propagation, but is useful in the case of kinds that grow, but with difficulty, from eyes, such as *D. congesta*, *gracilis*, *excelsa*, &c. Where a plant has a fine crown of leaves, and it is desired to strike the top with as little risk as possible of losing them, two or three incisions should be made in the stem at the height required, and some Moss should be bound around which, must always be kept moist. If done in this way, the top need not be separated from the parent plant till it pushes roots into the Moss, when it should be taken off and potted.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Peaches.—After the fruit is all set in the early house, the daily syringing of the trees may be resumed on fine mornings when the temperature begins to rise, and again after the house is closed for the day. If the inside borders have not been watered since the trees were started a good supply of diluted liquid a few degrees warmer than the mean temperature of the house will be beneficial, and old trees which invariably set more fruit than they can carry may have a light mulching of good rotten manure placed over the roots at the earliest convenience. When the young fruit has been relieved of the remains of the decaying flowers, all the small and least promising may be removed as disbudding is proceeded with, but these operations will require great care and judgment, as anything approaching severity, particularly where the trees are weak, may produce a check which will affect the size if it does not cause the fruit to drop. The best and safest plan is to commence with the upper parts of the most vigorous trees, by taking off the foreright shoots first, and pinching others for spurs or ultimate removal, as space is wanted, and to work gradually down to the horizontal branches through which the sap flows less freely. Airing will now require constant attention, as sudden changes from a high temperature to cutting draughts often do much injury. In bright sunny weather it will be well to shut off fire heat early in the day and to close a little earlier in the afternoon when 70° to 75° from solar heat alone will be quite safe, and the pipes being cold, a night temperature of 50° to 55° will be secured with gentle firing, and a chink of air on the front ventilators.

Succession houses.—Keep these well syringed and give just enough fire heat to admit of forcing with a circulation of air by night and day. Aim at a minimum temperature of 45° to 50° and a day temperature of 55° to 60° when artificial heat is required, and 5° more when the weather is bright or very mild. Fumigate with tobacco paper before the first blossoms open. Thin the latter where thickly placed by drawing the finger down the undersides of the shoots, and impregnate with a brush when in flower. By this time all late houses should be cleansed, tied in, and ready for syringing when the blossoms can be no longer kept back. Owing to the mildness of the season the buds are getting very forward, and unless we have a change the trees will be much earlier than they were last year, but much may be done by judicious retarding up to a certain stage, when a different course must be followed.

Figs.—Since I wrote the other day the early trees have made considerable progress, and many of the most forward Figs have reached a size which will not increase until the flowering process is complete, but this apparent stand need not cause alarm, as very important work is going on

inwardly, and hard forcing will not help them. If the weather continues favourable a steady night temperature of 60°, with a rise of 10° by day and 5° more after shutting up, will be quite high enough for a considerable time, but in the event of a change to wintry weather, 5° lower will form a safe working standard. Pay particular attention to the maintenance of a steady bottom-heat of 70° to 75°, and keep the roots well supplied with tepid liquid and guano water alternately, as the Fig when in growth is a gross feeder, and soon resents a falling off in quantity or quality. Be careful to keep the young growths and foliage firm and stout by means of liberal ventilation and clean by a vigorous use of the syringe, particularly when the house is closed for the day, with plenty of solar heat. Guard against over-crowding by pinching side shoots to form spurs, and remove weak growths entirely where there is not room for full development of the foliage and exposure of the fruit when it begins to ripen. Repeat former directions in the management of the succession house, always bearing in mind that a steady supply of heat, air, and moisture, combined with liberal feeding to well ripened trees which are not over-cropped, are cardinal points in the production of high-class fruit worth eating. Get trees in late houses pruned or thinned, washed and tied in as opportunity offers, as the time is near at hand when a multitude of pressing matters will require prompt attention.

Grape room.—Now all the late keeping Grapes are in their places, and doubtful berries have been removed, it will be necessary to keep the room dark, dry, and well ventilated. A temperature of 40° to 45° is quite high enough for Lady Downes, still the best and most profitable kind for keeping until new Hamburgs are ripe; and as the above figures can be maintained without the aid of fire-heat, all that is needed is just sufficient warmth on fine mornings to expel moisture. If Lady Downes are started early, perfectly fertilised, and well ripened early in the autumn, they will keep fresh and plump until May, but all stoneless berries which show signs of shrivelling after the leaves fall invariably shrink and perish first; hence the importance of taking time by the forelock in the spring, and the removal of all doubtful berries in the autumn before the bunches are removed from the Vines. To insure the perfect keeping of Muscats for any length of time after Christmas they should be quite ripe by the end of August, and slightly shaded from the autumn sun until the time arrives for cutting. To preserve their rich colour the Grape room should be kept at a temperature of 50° to 55°.

Melons.—To maintain a steady supply of Melons throughout the season another sowing should at once be made to succeed the first batch now coming into rough leaf. If the bed intended for these is not ready, give them a small shift and replunge in bottom heat near the glass. Meantime prepare the fruiting pots, and plunge them where they are to remain until the fruit is ripe. Prepare the soil (stiff calcareous loam, which has been stacked for some months in an open shed) by breaking it up with the hand. Place it loosely in the pots, to admit of the heat passing freely through it, then ram firmly and turn out the young plants before they become pot-bound. If the soil is poor add a 6-in. potful of bone dust, or twice that quantity of dry rotten cow manure to a bushel of loam. Mix thoroughly some time before it is wanted, and see that a few of the roughest lumps are placed over the drainage. Give water sparingly until the roots reach the sides of the pots, and defer feeding until the fruit begins to swell, when the highest culture that can be given will be needful. If planting out on hills or ridges is preferred, make them small at first, using thin sods of turf, Grass side downwards, for a foundation. Turn out the plants, a pair on each hill, and 2 feet apart on continuous ridges, water sparingly, and train to sticks when they begin to grow. Prolific kinds, now too numerous to mention, from which the earliest fruit is to be cut, may run over two-thirds of the trellis before the points are pinched out. The first

set of side shoots will then show and set freely, and the plants being clean and vigorous they will finish Melons of the finest size and quality. For growing over paths in Pine stoves and other places where the pots cannot be plunged, free-bearing scarlet-fleshed kinds like Turner's Gem, Read's and Blenheim Orange are well adapted, and often succeed over dry hot-water pipes where the green-fleshed varieties fail, or become badly infested with red spider. We generally get plants of the above kinds established in the fruiting pots ready to succeed winter Cucumbers. They take up but little room, and the rapidity with which the superfluous moisture can be forced out of the soil without lowering the temperature when the Melons begin to ripen prevents cracking, and gives them a flavour they do not often attain when planted out on hills, where the roots are not so completely under control. Where pit or frame culture is contemplated and fermenting material is plentiful, the latter must be well worked and fermented to be ready for making up a bed early in February. Plants for this kind of culture are usually pinched at the third or fourth leaf.

Vines.—Follow on disbudding and tying down in the early house. Stop the shoots at the second or third joint beyond the bunches, and lay in the first set of laterals where there is trellis room for extension. Direct syringing may be considerably lightened in dark, dull weather, but the daily application of tepid water to strong stems, walls, and floors must be followed up until the bunches come into flower, and even then a soft atmosphere with a free circulation of air will be preferable to extreme aridity. From this time forward airing will require careful attention, particularly in cold, windy weather; but so important is a constant change, that steady firing must be pursued every morning until a little air can be admitted at the apex of the house. Close early at 75°, and run up to 80° for a short time on bright afternoons. When the bunches come into flower maintain a steady night heat of 60° to 65° for Hamburgs and 70° for Muscats and shy-setting kinds. Run up 10° after closing, and re-open the ventilators, if only 3 in., from the close of day until the following morning. Fertilisation is of course an important matter, and almost every grower has a method of his own, from a dash with the syringe to a draw over with the hand; but this rough usage being often injurious to the delicate organs, a camel's-hair brush well charged with Hamburg pollen will best perform this operation.

Late houses now ready for starting may be well watered with cold water from the tanks to bring the inside borders into a growing state, and to fill up the buds before forcing is commenced. If the Vines carry heavy crops annually, and the Grapes are kept hanging until Christmas, a good surfacing of rotten manure may be laid on forthwith and well washed in with tepid liquid, as late hanging is quite as severe a tax as early forcing. Get all pruning and cutting down finished for the season, and dress the wounds with styptic, as there is now danger of bleeding; also put on grafts when the sap in the stocks begins to swell up the buds. An excellent kind for the late house will be found in Mrs. Pearson, as it is a good grower, and is greatly improved by being allowed to hang after the leaves fall; moreover, it can be grown and finished in a much shorter time than its fickle sister, the second-rate Golden Queen.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

WE commenced on Monday last to stick our early border of Peas, and I may here remark that we like new stakes in preference to old ones, always thinking the Peas take to them more kindly; we shall not at present use any Fir tops to protect them, the weather being so mild. But all will be in readiness for the cutting. March winds, which do them far more harm than frost. Take advantage of this fine dry, open weather to run the hoe through all growing crops, Lettuce, Cabbages, &c. Although I am no advocate for earthing up the latter, still the firmer the soil is round the

neck the better. In windy weather Cabbages often blow about and get loose at the neck, which is anything but a good condition. Planting out Tripoli Onions between rows of young Strawberry is a system which I always adopt, and generally they turn out fine bulbs, doing the young Strawberries no harm whatever; also planting a quarter of Hawke's Champion Rhubarb. We use Rhubarb in quantity for forcing purposes, and also for preserving. Turning over our store of Potatoes has occupied a long time, but is now drawing to a close. They are in capital condition, the eyes in most of them being now visible; the greater part are stored in a good dry room on shelves. Gardeners will now begin to order their seeds—nothing like being in time in this matter. Young Tomato plants should now be in 3-in. pots, singly. Keep them close to the glass in order to get them stubby and robust. In February we plant ours out in not too rich soil. Winter Tomatoes have done well with us, having had a full supply all through the autumn and winter. The best forcing varieties are Criterion and a selection of Hathaway's of our own. None of these are giants in size, but queens in flavour.

SOCIETIES.

MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.

THE fifty-fourth annual meeting of this Society was held on Monday last, in the mayor's parlour of the Town Hall. The Earl of Derby (president) occupied the chair. The report and financial statement were taken as read. The chairman, in moving the adoption of the report and statement of accounts, said that though the report had not been read, most of those present were no doubt familiar with its contents, because it had been printed and circulated among the members. It stated that the annual exhibition held at Whit-suntide was attended by nearly 50,000 persons, and that what was very rightly called the great event of the year—the International Exhibition, which was held in the month of August—had been from every point of view except one an entire success. The one thing that failed them was the weather. That was very unfavourable, and as a necessary consequence the financial results were not altogether what they had hoped and expected. It was intended that the funds resulting from that exhibition should have been applied to the replacing of various arrangements, glass houses, and other necessary improvements in the gardens. It had not been possible to do that to the extent which was desired, but to a certain extent it was being done. There was a surplus of £890, and that would be applied to the purposes named. The number of visitors who had attended the exhibitions in the course of the year was put down at nearly 100,000, and the sum given away in prizes was £2600. That was, he thought, rather in excess of former years, but large sums had been for many years past given away in that manner, and it could not be doubted that they had produced a very considerable effect in the local improvement of horticulture. He was asked to mention the fact that assistance had been frequently given—in fact was habitually given to the small floral societies which were established in various parts of Lancashire. The members of those small floral societies were generally working men, and it had been found a convenience to them, and an advantage in many ways, to be invited to hold their shows in connection with the exhibitions of the Manchester Botanical Society. He did not know that there was anything else he had to mention, except to say that it was always an important matter, in regard to any association like theirs, that their financial position was in the main sound and satisfactory. He had told them that the surplus last year was £890, and he would add, looking at the liabilities of the Society, that he observed they were at a lower figure this year than they had generally stood during the last ten years. In 1872, 1873, 1874, and 1875 they were upwards

of £6000. Then they fell to £3000, in consequence of an effort made to pay off the debts. In 1877 they were £2700, and they rose again to £3900, £4300, and £4400, and last year they had fallen again to £3600. He did not call that entirely satisfactory, because he should be glad to see that they had no liabilities at all; but it was something that they were lighter than they had been at any period of the last ten years, with a single exception of one year. He considered that in a material respect the Society was prospering, and it undoubtedly had never attracted a larger share of public attention or received more general support from all parts of the country and the surrounding districts than in the course of the last twelve months. The mayor said there was a time—and that period was pointed out by Lord Derby himself—when the Society approached very nearly to a state of insolvency. But, as in the affairs of men, there was also a turn in the affairs of the Manchester Botanical Society, and that turn for the better came when their present curator, Mr. Bruce Findlay, was appointed to the office he now held. Reference had been made to the financial position of the Society, which was a most important question. He did not hesitate to say that, if the weather had only been of a genial character, the pecuniary position of the Society would at present have been a very satisfactory one.

Botanic Garden, Glasnevin.—There was, according to the report for the year 1881, an exceptionally large number of visitors to this garden during the past twelve months as compared with previous years. There was an increase of 19,029 on 1879, and 47,157 on 1880. 1878, 214,086; 1879, 228,725; 1880, 201,824; 1881, 249,911. These numbers were made up as follows: Sunday visitors, 187,114; week-day visitors, 62,797. The highest monthly attendance was in July, when the gardens were visited by 35,435 persons; September comes next with a total of 33,080. The highest weekly attendance was during the seven days ending April 23 (Easter week), the number of visitors being 13,627; the week ending September 3 comes next; number of visitors, 10,101. The highest week-day attendance was on April 8 (Easter Monday); number of visitors, 6980. The highest Sunday attendance was on September 4; number of visitors, 7740. This gratifying increase in the number is chiefly due to the fine dry season, and also to the fact that the principal holidays happened on fine days.

Fungus on Ivy leaves.—There is certainly a close connection between the fungus of which Mr. Webster complains (p. 52) and scale. I have seen the same thing repeatedly, and it always occurs on Camellias that are infested by scale; also on Orange trees and other plants having the same glossy foliage. The readiest way to see matters right is to destroy the scale, which may be done by means of the garden engine and the use of paraffin and water in the proportion of a pint or so of the former to nine gallons or so of the latter, but the two must be kept well stirred or agitated by driving the paraffin down by a constant drawing up and syringing the same back again, or the two will not mix. Not only will the paraffin kill the scale, but it destroys red spider and most other pests of that nature as well. The Ivy on our church was nearly eaten up with spiders, which were in such numbers as to quite brown and disfigure the leaves, but after using paraffin in the way above described, they were cleared off, and the foliage is now as bright and glossy as ever.—J. S.

Names of plants.—E. H., *Ranunculus*.—1, *Pteris serrulata cristata*; 2, *Nephrodium molle corymbiferum*; 3, *Asplenium bulbiferum*; 4, *Pteris serrulata*.

COMMUNICATIONS RECEIVED.

J. C. M.—E. J. D.—R. W. J. C. C.—E. W.—W. B.—G. J.—R. G.—G. F.—W. M. P.—W. W.—J. S.—F. C. B.—A. D.—A. K.—J. D.—J. G.—W. N.—S. C.—J. C. B.—W. F. M.—Mac.—J. B.—G. H.—G. C. W.—A. P.—G. L.—F.—W. J. M.—G. L.—W. W.—A. T. P.—R. D.—W. C.—B. G.—A. B.—P. G.—F. W. B.—J. F. B.—D. T. F.—W. J. M.—J. C. C.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

SPOTTED PALMATE ORCHIS AND ITS VARIETIES.

MR. DOUGLAS' interesting notes which lately appeared in *THE GARDEN*, headed *Hardy Orchids*, suggest that those who have tried these in cultivation should record their experience. I have tried nearly all the British species and some foreign ones, but have not been very successful, except with the kind mentioned at the head of these notes, known to botanists as *Orchis maculata*, including, however, two or three closely allied species or varieties—the *Marsh Orchis* (*O. latifolia*), the *Kilmarnock Orchis* (*O. maculata superba*), and the *Madeira Orchis* (*O. foliosa*), of each of which I will say something when its turn comes. The requirements of such fastidious plants as most of the genus *Ophrys*, the *Bee*, the *Fly*, the *Spider Orchis*, also of that curious and nearly extinct native, the *Lizard Orchis*, are seldom found in gardens. You may try to copy Nature and imitate the soil and surface and aspect, yet there seems to be certain atmospheric conditions which must be satisfied, and yet cannot be artificially produced. Other native *Orchises*, such as the common *Meadow Orchis* (*O. moris*), the early purple *Orchis* (*O. maculosa*), the *Pyramidal Orchis* (*O. pyramidalis*), the *Butterfly Orchis* (*Habenaria bifolia*), and the fragrant *Gnat Orchis* (*O. conopsea*) live and flower in a garden, but do not increase or improve. I have done all I can to establish the sweet scented *little Lady's Tresses* (*Spiranthes autumnalis*), but in vain, for it imperatively demands a surrounding of the short green Grass of its native downs, and if a sod of this is transferred to a garden, it soon becomes a tuft of coarse hay, in which the dwarf *Orchis* is lost. I have also tried many of the North American hardy terrestrial *Orchises*, large numbers of which are annually imported, amongst the finest being *Habenaria fibriata* and *H. psychodes*. These flower the first year, but rapidly degenerate, offended no doubt with the cold, wet summer of Cheshire, contrasted with the blazing hot suns of their native country.

The *Spotted Palmate Orchis* is found, I believe, in every part of the kingdom. In the south of England it comes into flower about the end of May, but on the highland mountains I have found it just opening at the end of August. It avoids, as all *Orchises* seem to do, dry sandy soils, and grows best in loam, but it grows well in wet, boggy spots in company with the *Marsh Orchis*. It is abundant on the clay soils of Cheshire and in all parts of North Wales. It varies in colour from pink to nearly white, but the spots on the flower are too many for it ever to appear very pure white. These *Orchises* are easy to find through the autumn and winter, as they generally grow in sheltered spots where they retain their flower-stalks until spring, but I find that if properly dug up they move just as well when in flower as at any other time. The tuber is seldom deep, not more than 3 in. or 4 in., and the thick fleshy roots which it is important not to disturb are sent out horizontally from the crown of the tuber to a distance of from 1 in. to 2 in. As I before said, they always grow in soil which adheres readily, so that by digging up a ring of 4 in. in diameter round the stalk the whole plant is secured. A cool, rather retentive sub-soil of spongy peat and loam is what they seem to like best in cultivation, and shelter, but not shade. The Sedge and weeds from the surface of the

ball should be carefully cleared away in planting, and the tuber should not be buried more than 4 in. Being surface feeders—that is, sending out their feeding roots horizontally near the surface—it is very important to give them every winter a light, but rich dressing of leaf-mould and well rotted manure. They take about two years to become well established in their new home, but after this they not only multiply, but improve greatly if treated well. They make a compact flower-spike of fully 1 ft. in length, which lasts all June, and the whole height of the plant is often 3 ft. After collecting varieties in colour and form from different parts of the kingdom I am puzzled where to draw the line between *O. maculata* and the *Marsh Orchis* (*O. latifolia*). Botanists give characteristics which in typical specimens are obvious enough, but intermediate forms occur, especially where the two kinds grow together, which are not easy to distinguish. Anyhow, the same treatment suits both in cultivation, but the *Marsh Orchis* is by nature a larger and more robust form. In colour it varies from dull pink, its ordinary colour in the south of England, to rich claret colour, which is the common form in North Wales where the plant is usually of smaller size, and the flowers on the spikes fewer, and I am afraid that when these become developed by cultivation into larger plants they may lose their richness of colour. In selecting specimens for the garden I generally choose those of the strongest growth, and having compact round-topped flower-heads like rockets, as I find they retain these characters, but I think I have specimens of *O. maculata* as large as any of *O. latifolia*. The *Kilmarnock Orchis*, sold by nurserymen by the name of *O. maculata superba*, was given to me by the late Miss Hope, of Wardie Lodge. I do not know its history, but it is a very vigorous and handsome form of the *spotted Palmate Orchis*, with a very full close-flowering, round-headed spike of flowers.

The *Madeira Orchis* (*O. foliosa*) is remarkable, as Mr. Douglas observes, for the readiness with which it doubles its bulb. I give it exactly the same treatment as the others, and though its native place might lead us to suspect its hardiness, I have no reason to do so, having had several in the open air border for three winters without ever missing one. The flowers and leaves are rather larger than those of *O. latifolia*, which in other respects it closely resembles, and it does not with me make a longer spike. It has been said of these *Orchises*, and I have reason to believe that it is true, that if prevented for a year or two from perfecting their flowers, or even from making any growth at all above ground, the tuber will increase, and the flowering become as it were cumulative, the spike being of extra size. It is the habit of terrestrial *Orchises* to form an entirely new tuber every year, the old one remaining, but dying; it must, however, be presumed that in the contingency mentioned above the tuber is not renewed. A similar habit of remaining dormant and yet increasing in size certainly exists in the case of some Lilies. In a year or two I hope to be able to speak with more certainty of this peculiarity in the *Orchis*.

Edge Hall, Malpas.

P.S.—In Hooker's "*British Flora*" a white *Marsh Orchis* is mentioned, which I have never been able to see. I have found pure white varieties of the *Early Purple*, the *Gnat*, the *Pyramidal*, and the common *Meadow Orchises*, but of no others.

THE RIDE ON HAMPSTEAD HEATH.

PUBLIC work should not be less carefully done than private work; in fact, there are good reasons why it should be done as well as

possible; but Hampstead Heath now shows a specimen of public work in road making which certainly is no credit to our administration of parks and open places. On the north side of that Heath it was thought well some years ago to make a new ride, an old road having occupied the same place before. This was all very well if the road had not been closed and if the ride were made properly; but it was made very badly. A large, wide, and apparently handsome road was made in a good position, and the unhappy rider who comes upon this does not suppose that anybody would make a pit for him in such a position in a public park; but this avenue is truly described in the *Hampstead Express* of last week as "a bog in winter and a dust-pit in summer." Natural bogs one can avoid, but a bog made by a public authority in the shape of a ride in a public park is really too bad. Many an accident has occurred, and action has been taken against the Board in consequence. The right way for the Board, if they could not afford to make a good road, was to leave the old road as it was, so that the walker or rider could see its state at a glance. If the small sum they devoted to the making of the road was all they could afford at the time, the next best plan was to have made a portion of the ride crisp and hard as a public road should be, and made the rest when they could afford it. A good road well lighted is really wanted. No doubt the very best and quietest part of the Heath is well suited to the enjoyment of equestrians, but it should be such a road as they can use at all seasons without greater danger than a ride in Hyde Park, and without excluding the general public who wish to drive by the nearest and least hilly route from Kilburn and Paddington to Highgate and the northern districts. Let us keep a ride by all means, provided it be a safe and good one, but let us also have a good road, well kept and sufficiently lighted. Ratepayers will not grumble if they get what they want; but if they pay rates and break their necks or lame their horses because the Board of Works have a stupid surveyor, the Hampstead people will begin to inquire if they are properly represented on the Board of Works, and the public generally will ask whether the Board itself does not require reform or reconstruction.

KEW AND HARDY FLOWERS.

WE have lately signed with pleasure a requisition asking that funds might be provided for the erection of a rock garden in the Royal Gardens at Kew. Since then we have been thinking that a great deal might be done at Kew, apart from this rock garden, to encourage the culture of hardy flowers, and to illustrate the beauty of northern herbaceous and alpine vegetation. Why should not the more beautiful of the hardy flowers be brought out of the stiff botanical arrangement, increased, and put in groups and colonies about the grounds? Why should not we see at Kew numbers of spring flowers in the early year? whereas one really sees very few except small, sometimes worn-out patches in the botanical arrangement. The advantages of the place for spring flowers are great—the soil is dry and light, and the air is pure and warm for our country. At Kew, as in all other gardens, the plan of the shrubbery and all its nakedness must be altered. The most delightful way to arrange hardy flowers is to group them with hardy shrubs and low trees—to let the herbaceous vegetation take its natural place in association with such vegetation. The old mixed border, with its dottings of poor specimens everywhere, and its repetition of the same popular kind along the line of the border *ad nauseam* is inartistic and wrong. The true way in such a

noble garden is to vary every clump and every border; not to have any one fixed way of arranging the flowers, but in such a large place to have many ways. We do not mean that Kew should not have, say, an extensive and beautifully made mixed border. Indeed, it were better it should have that, but it should be a true mixed border, varied as to height and varied as to vegetation as one walked along it; but the better way is to take every part of the ground and see what kind of vegetation it is adapted for. Even if we find no great difference in the situation or soil, it is easy to make it so in the plants. For example, one clump of shrubs might have a groundwork of one Natural Order, or a beautiful genus in the Natural Order, say the *Globe* flowers, which look well in a moist soil between sparsely-placed shrubs, or near the margin of the lake. Committing ourselves to an herbaceous department in one spot only is the ruin of the whole thing. After all, the so-called botanical department only does imperfectly what is infinitely much better done in the herbarium or book. So, too, in a big clump of tallish trees how much better would the American *Starworts* come in, not as dots, but as groups or colonies. Why not take such a lovely family as the wild single *Clematis*, and train them over a group of low trees which they would not hurt? In this way we should see their beauty and grace as we never shall in beds or on poles.

Then there are the finer plants which group well together, such as the *Tritomas*, the free-flowering *Yuccas*, the larger *Ferulas*, and other of the finer types, of which isolated beds might be made for their own sakes. Far greater in number, indeed almost without end, are the species which might be used as broad edgings, colonies, and groups in all the beds of shrubs and shrubberies where bare surfaces are now visible. Where Grass is wanted and is pleasant we have no desire to interfere with it, except that in the rougher part of the garden where the Grass is not mown too early, the spare bulbs of *Grape Hyacinths*, *Scillas*, and other things might be naturalised in the Grass as they are now being naturalised in many country seats; in fact, there is no reason whatever why the garden should not smile with the flower beauty of our northern world in spring and early summer. The rock garden is always a costly and troublesome affair; whereas the larger plan of embellishing the whole garden need not be so. It would no doubt lead to a modification of what is called the flower garden. The flower gardener should be an artist, and should know all the materials—and they are very many—with which he may have to deal. That he should be a mere painter of a floral rug is an idea that we hope nobody will much longer entertain.

R.

Rose screens.—I would not advise "W. S. T." (p. 55) to mix Roses with any other plant, as in all probability they would not in a mixed state answer his expectations. It is quite possible to make Rose screens with the Hybrid Perpetual kinds 6 ft. or 8 ft. high, but in winter they would be for the most part leafless, whilst the screen would be required throughout the year. The only Roses I should think of planting for such a purpose would be the hardy *Ayrshire* kinds, which are well known for their hardiness and luxuriant growth, and which retain many of their leaves all through the year. If I intended to make such a screen of Roses alone, I would first thoroughly prepare the ground by forming a space 2 ft. wide with good loam and rotten manure to the depth of 2 ft. To support the Roses, I would construct a wire fence 7 ft. high with five wires attached to either iron uprights or small *Fir* poles. To the wires I would train the growth for the first two years so as to hide the object it is desired to shut out, and after that, with but a very little thinning

out of the old wood once a year, I would leave them alone, and would have no fear but that I should have a good screen and a glorious show of Roses at the same time.—J. C. C.

FLOWER GARDEN.

GOLD-LACED POLYANTHUSES.

"EXILE'S" note in *THE GARDEN* (p. 53) brings to my mind many curious stories I have heard old florists tell about the vicissitudes which have happened in the histories of famous old Polyanthuses, many of which have been lost and again found. I hope some of these may find their way into your pages. One of the very finest dark Polyanthuses was *Hutton's Lord Lincoln*, which became famous in 1840. An old florist told me that he recollected once seeing quite a large bed of this Polyanthus in a working man's garden near *Rochedale*, and that nothing would induce him to part with a plant of it. A few years later Polyanthus growing went out of fashion and the stock became neglected, so that almost the whole of it became lost. The fashion for showing and growing again came round, and my friend sought out this garden, and there he found an odd plant which had survived, and which has formed the nucleus from which our present stock has been raised. It is still, however, very rare and very difficult to grow, so that for a good plant you must pay half-a-guinea and consider yourself favoured into the bargain. *Lancer* also became very nearly extinct a few years ago, and is still in a very few collections, although you frequently see the name in catalogues. *Maud's Beauty of England* is another instance. It dates back as far as 1833, when it was first shown. "Exile" says it is gone now, but in this he is mistaken, as I could show him. There were within the last five years two strains of this Polyanthus, both of which were considered true. The *Yorkshire Beauty of England* I last heard of at *Pohlmann's*, of *Halifax*, from whom I bought a plant, and two other Lancashire florists had plants at the same time. The severe winters which have since visited us killed all Mr. *Pohlmann's* stock, as well as ours, and so the plant became lost to *Yorkshire*. I never saw this strain in bloom. The *Lancashire Beauty of England*, however, still survived in the hands of two of our oldest florists, as well as with one or two amateurs. There can be no doubt, I think, of the genuineness of this strain, as it is vouched for by old *David Jackson* and *T. Mellor*, two of our oldest and highest authorities, upon whose judgment any Polyanthus grower will rely. When I showed this Polyanthus successfully a few years ago, after a long absence from the stage, the late Mr. *Read*, of *Market Rasen* (the raiser of *Acme* and other first-rate *Auriculas*), wrote to me about it, as he had known the *Beauty* since its origin, and had grown it for many years. I, therefore, sent him a fine truss of bloom, and received his letter in reply, stating that there could be no doubt that it was the true old *Beauty of England*. These three witnesses should suffice to satisfy "Exile" that the plant survives. *Cox's Prince Regent* was also missing for years, and has only recently reappeared upon the stage. I believe I was the first to recover and show it successfully, and well do I recollect the interest it excited in some of our old florists when it was shown at *Manchester* in my second prize lot. They examined it carefully with a magnifying glass as I stood by unknown to the group, and I was delighted to hear the verdict that it was "th' old *Regent*, sure enough." *Pearson's Alexander* is mentioned by "Exile" as a grand old variety, as if he had seen it lately, but I am pretty certain that he does not know where it exists. It is a

long time since it was seen by the public. I stated in a recent note in your journal that this grand old Polyanthus might be looked for on the stage this season, but its whereabouts is still a secret. It has certainly been found again and its authenticity established before very competent judges, and it will be another pleasant surprise if it can be shown in its true form. This is one of the oldest show Polyanthuses of which we have any record, dating as far back as 1822, the same year, however, as that for *Cox's Prince Regent*, so that these two remarkable flowers have now completed their sixtieth season as show flowers, and are still almost unsurpassed. *Kingfisher* is also noted by "Exile" as the grandest variety ever raised in England, but now lost. I think this has also been found, and will probably appear next year.

Could "Exile" tell us how it happens that there are three varieties of *George IV.*? That there are two I am well aware, and that one is just as good as the other is inferior. This is well known to florists. *Buck's* is, I believe, the true show sort, and it was brought out in 1833. Now, *King George IV.* died in 1830, and this may have been a seedling of that year, named to his memory. But what are *Waterhouse's* and *Benson's* varieties of the same name given by "Exile"? The second variety, of which I am aware so nearly resembles the best one as to pass for it with the uninitiated, though it cannot stand the tests of a good judge upon the show table, as many exhibitors have found to their loss. "Exile" also recollects having seen *Kingfisher* fifty years ago. I cannot find it in our show lists of 1822, and am curious to know its history and origin. If shown at *Sheffield* and *Bradford* it was probably a *Yorkshire* flower, and did not find its way into *Lancashire*. The record could probably be found in the *Yorkshire* show lists.

W. BROCKBANK.

Brookhurst, Didsbury.

HARDY ANNUALS.

THESE unquestionably rank amongst the most showy and useful plants which we possess, and not only that, but they may be raised and got up at a minimum of cost; whereas those of a more tender character require the assistance of glass and heat to raise them and get them ready for planting out. Instead of such attention as this, all that is necessary in the case of hardy annuals is to sow them in the beds or borders, which may be done either in the autumn or any time during February, March, or April, or even later, according to the varieties to be grown and the season at which it is desired to have them come into bloom. The great advantage in sowing in autumn is that they not only flower much sooner, but they are, where the soil and climate suit them, always stronger and finer. In the management and treatment of autumn-sown annuals the best way is to have them in patches in a sheltered situation during winter, and then plant out the finest and strongest plants thinly very early in spring. In doing this warm, showery weather should be chosen, as then they receive less check and become re-established at once. To grow and bloom annuals well they must have rich ground, and therefore before planting it is always advisable to work into it plenty of manure, which should be well decomposed and dug in at a good depth, that the roots may be enticed down and find plenty on which to feed. These remarks also apply to those sown from this time onwards, and indeed to most annuals, the whole of which pay well for good cultivation. Why they are so often seen in poor condition is owing to their being sown on thin, hungry soil, and leaving them thick and crowded. Grown in deep rich ground and well thinned, they branch out and flower abundantly. The proper time to sow hardy annuals is when the earth is moderately dry, as then they are not apt to rot; and to insure getting the seed to germinate, it is a good plan to

sow on a sprinkling of prepared sandy soil and then cover thinly with the same. This may easily be done by running a little through a fine sieve before and after the seeds are sown; the only care then required will be to keep off slugs when the seeds germinate, which may be managed by surrounding them with a ring of fresh-slaked lime and soot, which will not only ward off these pests, but be of material help in stimulating the plants. The latter should be thinned out gradually by the removal of the weakest from time to time till it can be seen that the others are safe and require the room, when they may be left to themselves.

Varieties.—One of the first that will commend itself is the Candytuft, of which there are now several shades of colour ranging from pure white up to deep crimson. Most of the Candytufts are garden varieties, but all are so good and distinct, as to be well worth growing, and besides being useful in beds and borders, they are also well adapted for rockwork or banks, in either of which positions they spread rapidly, and flower with great freedom. Calliopsis, too, are very showy annuals, having brilliantly coloured flowers. Perhaps the most noteworthy amongst them is *C. Burridgei*, an exceedingly bright and effective kind. Calliopsis should not be sown till April, and the easiest way to get them up is to place a pot over them for a few days after sowing, as then the sun heat which the pot absorbs and holds within it warms the ground, and thus helps the seed to germinate. The annual varieties of *Chrysanthemum* are also very fine, and when better known, are sure to be largely grown, as the flowers, besides being of large size and fine form, are beautifully marked and of great value in a cut state. Besides the single varieties, there are several double ones, the flowers of which are as large as Marigolds, to which in form and appearance they bear a close resemblance. If sown or planted early, these *Chrysanthemums* will bloom the whole summer, and continue on till quite late in the autumn. Being strong growers, from one to three in a patch are quite sufficient, as they require much space. All the *Clarkias*, of which there are many, are quite worth having, and they do well in moderately good soil. *Convolvulus minor* should be largely grown for bedding, a purpose for which its habit and continuous blooming qualities render it specially suited, and where their rich blue and violet colours make them particularly telling, either alone or in combination with silver or other variegated *Pelargoniums*, with which they form a fine contrast. *Eschscholtzias*, too, such as *E. aurantiaca* and *E. Mandarin*, are wonderfully showy, and will grow almost anywhere as regards soil, but they like sun, and when exposed to its influence send up their large, gorgeous, Tulip-like flowers in the greatest profusion.

Godetias and Everlastings.—*Godetias* are as so strikingly beautiful that no garden should be without them, and they are among the easiest annuals to grow. *G. Whitneyi* is the largest and finest, as this variety bears flowers of a satiny crimson-blush colour, and in good soils they measure quite 4 in. across. In shape and appearance they are Mallow-like, but the plant has thick, lance-shaped leaves, and is very compact in habit, and blooms with remarkable freedom. The next in point of merit are *Lady Albemarle*, the *Bride*, and *Princess of Wales*, all of which and several others are garden varieties that have originated from the first-named, but are different in shade and in the rich markings of their blossoms. *Helichrysms*, better known as *Everlastings*, are invaluable both for decorative purposes in borders and for the embellishment of vases in rooms, where, if gathered before they become too fully expanded and dried in the shade, they last fresh and preserve their colour the whole of the winter, or even for years. The larger kind, *H. monstrosum*, is the most showy of the whole, but *H. bracteatum* and *compositum* are the best for the ornamentation of glasses, as though smaller in size, they are very compact and brilliant, and dress well with Grasses, a combination that has a very pleasing and telling effect. *Helichrysms* are not

very particular as to soil, and will flourish almost anywhere, but like sun and a warm, dry situation, where they come to perfection.

Larkspurs and Lupines.—*Larkspurs* are exceedingly showy annuals, good alike for beds and borders, as they may be had both tall and dwarf, and for flowering habit are quite unsurpassed. If beds are made, the best way is to have a mixed packet of seed, as then there is plenty of variety; but for borders, patches of three or so of a sort are preferable, so as to have all of one colour together. *Lupines*, with their large long spikes of Pea-shaped flowers, are also very showy border plants, where the large kinds should be sown and grown singly, and the smaller ones three in a clump. Poor sandy soil suits *Lupines* well, and they bloom better in it than in that which is rich.

Mignonette and Nasturtiums.—*Mignonette* is too well known and appreciated to require more than a passing notice, but common *Mignonette* is now so far eclipsed by the newer varieties, such as *Miles' Hybrid Spiral*, as to look, comparatively speaking, like a mere weed. *Nasturtiums* have also long been favourites, and they, too, have been improved to that degree as to render them among the most desirable of plants to have in a garden, for if there is an unsightly object to cover, one has only to put in a few seeds of some of the climbing kinds, and they will soon be up and adorn it with beauty; or if there are beds to fill where a display of vivid colours is required, we have only to turn to the Tom Thumb section to get all that is needed. These kinds are dwarf and compact, and send up a profusion of large brilliant blossoms. Unlike most annuals, they flower best in poor soil; when grown in that of a deep rich character, they run too much to leaf and are not so short jointed and close in their habit.

Stocks of the German kind make magnificent beds ablaze with colour; they need only to be sown about the end of April very thinly in rows where they are to stand. This is much better than transplanting, as by doing that they lose their tap root, and receive such a check, as to throw them prematurely into flower. To grow *Stocks* well, the soil cannot be too rich or deep, and therefore before sowing it should be thoroughly broken up and heavily manured, and then raked down fine to get the seed in.

Butterfly plants (*Schizanthus*) are a charming class of annuals, the flowers of which resemble a butterfly with wings outspread, and the petals are beautifully marked and spotted. The most showy amongst the *Schizanthuses* is *S. papilionaceus*, and *S. retusus* *Grahami* is also good and of great value for cutting.

Sweet Peas must not be forgotten, as with a few patches of them in the borders running up twiggy sticks or a row in the garden, there is always something to help to fill the flower basket and dress up perennials. As there are so many sorts, the best way is to get a large packet of mixed seeds and grow them together, in which manner the blending of the different colours, produces a pleasing effect. To have *Sweet Peas* strong, they should be sown early, and to keep up a supply, it is well to make another sowing later. S. D.

SOILS FOR ALPINE PLANTS.

I HAVE been very much interested in the remarks on this subject made by Messrs. Whitehead (p. 340), Hatfield (p. 555), and Harvey (p. 571). A few years ago, when I was trying to grow alpine plants in a covered structure, and when my collection was so small that I could give to each specimen the very soil it needed, I became convinced that the secret of growing alpine plants well consisted in planting them in proper soil, together with good drainage and a careful mode of watering, because many things that would not grow in some kinds of soil did remarkably well in others. I am, however, well aware that experience of that sort cannot be of much use in the case of large collections in the open air.

There is also much in other conditions besides soils. Since that time I have grown the same species with success in other soils, and lost many by trying to grow them in the same soil as that which previously answered well. In my then limited experience I thought that soil was the all important point in alpine plant culture, and with that conviction I began in the open air by giving, or trying to give, to each its proper soil and quarters, and to such an extent have I carried out the soil principle that my little garden is a series of beds or pockets of various mixtures and non-mixtures. I still believe there is very much to be said in favour of employing certain soils for most plants under cultivation, but I do not now consider as I used to do that soils are all important, nor can I conceive it possible for anyone to lay down hard and fast rules for the culture of alpine plants in our variable soils and subsoils, even though we may try to entirely adapt them, for there is peat and peat, loam and loam, and clay and clay. I do not dispute the very interesting statement made by Mr. Harvey as gathered from German authors respecting the detritus and humus, &c., of alpine regions, and for which it is next to impossible to find a substitute here any more than for alpine snows. Nor do I disparage the instructive facts of Herr Gusmus, kindly given by Mr. Whitehead, but we must not forget that such observations concerning plants in a wild state do not always apply to those under cultivation. Doubtless Nature is our surest guide; and if we cannot follow her, what are we to follow? But can we copy Nature (as seen in the native homes of alpine plants) in this country, and with such mixtures of grits and soils as must necessarily vary very much in degree, both chemically and mechanically, from the alpine soils, &c., for doubtless that is so, and probably more or less such differences exist in the various alpine districts themselves. Nature's lessons are not always learnt by reading one page of her book, and from what has already been stated in the lists supplied by Messrs. Whitehead, Harvey, and Hatfield, the rules for culture, or the so-called proper soils, are seen in reference to some plants to be diametrically opposite, and as regards many others there is not that uniformity which might seem desirable to those of us who thought we had imitated Nature. We need not, however, be surprised at such apparent contradictions, which, viewed in relation to the culture of alpine plants under artificial conditions, may show that sometimes a "lime hater" may be grown on lime, when probably in such a case some other conditions are varied. This I assume to be the most important consideration in connection with our combined readings and copyings of Nature, viz., to try, by cultural experiments and observations, to learn the most simple way of growing alpine plants in their finest forms in our gardens; were it not so, surely our time might be better occupied.

I may here say that I have proved many plants to be lovers of certain soils as shown by the lists referred to, but I have also proved others to be quite the reverse. Lime has been used in various forms here, viz., in the shape of big stones, lime chippings, mortar rubbish, lime water, and likewise in other forms, and it need scarcely be said that these have operated unequally. There is one form which I have used for many plants with remarkable results, viz., lime "boiled" and richly charged with animal hair and other animal matter. I have found many kinds of Iris, Saxifrage, dwarf Phlox, Primulas, Geums, Myosotis, Senecio pulcher, *Helleborus niger*, *Artemisia*, *Antennaria*, *Violets*, *Alyssum*, *Sedums*, *Menziesia* *empetriformis*, and many other common things, *Pyrethrums*, *Gentiana acanthis*, *Daisies*, *Polyanthuses*, and *Pansies* to be very fond of it, as also are *Trollius* and *Cypripedium Calceolus* which have been tried in it for a longer period. Some of these will not live in other forms of lime. I may also name incidentally that a Coffee plant was planted in it a month or two ago, and it is now a good healthy specimen. A Cucumber plant was tried in it with excellent results. An unhealthy *Gardenia* had some mixed with fresh loam in which it was re-

potted, and since then (last spring) it has made a fine healthy growth. These facts are mentioned to show that lime in certain forms, and used under certain conditions, may produce other results than the orthodox. I believe that when we seek to grow alpine, we must, consider other conditions in connection with soils, climate, altitude, aspect, rainfall, drainage, and surrounding shelter as tending to maintain the necessary amount of humidity, which otherwise should be provided by artificial means, and to go further into detail, I have found it very important on my small bits of rockwork to form depressed surfaces, not only about the bases, but on the ridges; these are not only very useful but important, and act very differently. The ridge depressions will not grow the dwarf Gentians, though there seems to be no lack of moisture, because (as I have supposed) the drainage was too rapid, but in such a position with its roots under a big piece of limestone, *Arnica montana* does well, the soil being leaf-mould, loam, and charcoal. This species is shown by both Mr. Hatfield and Mr. Harvey as not liking lime. The Gentians referred to just now have done fairly well since they were planted in similar soil in a depression below the garden level, and where they are constantly in a very moist state.

Probably some, or all, of the above conditions will vary in ninety-nine gardens out of a hundred, and to alter one of such conditions, as, say, the detritus from granite to lime, might not move the balance much either one way or the other; but in other cases the same alteration might act like granules of acid dropped into an alkaline liquid. How often too has it been proved that to transplant a subject from one side of a small depression to the other—not more than 3 ft.—has had a magical effect on the plant. No doubt the method of making rockwork in sections of various kinds of soil is good, but unless such sections are somewhat extended inter-saturation may do harm. Again, the staple soil of the garden may be calcareous loam; therefore the chemical qualities of the soil should be ascertained, but even under skilful management section rockeries are, from their sponge-like porosity and uneven forms, liable to become mixed chemically, especially when much organic matter is used. This may appear far-fetched, but it has at least a direct bearing technically on the subject of soils, as has also bad drainage, for though many plants are known to like stagnant moisture at their roots, if these should be near any of the various forms of lime it is not hard to see that such lime-charged moisture would be, as a rule, against the health of plant life.

On the whole, I consider it very difficult indeed for anyone to lay down rules in regard to soils without going very elaborately into all other conditions relative thereto. Let me instance the lists of plants already so kindly given us. They are said to be the readings from Nature and observation. Still they clash as it would appear, though I hold the differences have natural causes, and until such causes can be clearly explained we may wisely go on comparing notes, but avoid laying down cultural rules. The question is, in what materials may we grow such plants at home, where both climate and soil are different from those of alpine regions? Such materials are silty loam, peat, leaf-mould, well decayed stable manure, sandstone grit, red brick grit, charcoal, road sweepings during the fall of the leaves, shingle, and chips of limestone and granite. I venture to say that an intelligent use of these in any situation where perennial border plants will yield good results, whether the alpine are grown in pots or on rockwork. Some of my finest specimens have been reared on beds of finely sifted ashes, topped with 6 in. of rotten manure and sandy loam. Such specimens are easily lifted with balls for any purpose. J. WOOD.

Kirkstall.

—Four years ago I had the good fortune to fall in with Mr. Froebel, of Zurich, at Fiora (Ticino). He was collecting plants and I was as usual, collecting seeds. We fell in with Globularia

vulgaris, or rather I think I brought in a specimen of it, and he pointed out to me that it was not to be found at Fiora itself, but only on the calcareous rocks at a short distance from it. Mr. Froebel I am sure could tell us a good deal on the matter of soils. Will he not enlighten us? He must recollect that soaking day at Fiora and our visit to the beehives. —G. H. W., *Clifton, Bristol.*

Scolopendrium Kelwayi.—Referring to Mr. Webster's inquiry (p. 59) respecting this Fern, I may remark that I saw the original plant before it was named. I have many times seen it since in different parts of the country, and have never had any difficulty in recognising it; but more than once I have noticed that Morgani has been substituted for it. Quite recently I saw a fine batch of Kelwayi and Morgani in the nursery of Mr. R. T. Veitch, at Exeter, growing side by side, and both varieties were certainly distinct. —J. C. CLARKE, *Cothelstone, Taunton.*

Saxifraga Andrewsii.—I do not think that this Saxifraga is very generally grown, but it certainly has qualities that strongly recommend it. It is, I believe, a hybrid between the Encrusted and London Pride sections, and looks exactly intermediate between the two. It forms dense tufts of deep green foliage, which, like that of the London Pride, remains fresh and bright all through the winter, no matter how inclement the weather may be. It thrives almost anywhere, but its true place is in the shade, as it grows with greatest vigour in a cool, moist situation. For dark, damp, unselected positions this is an invaluable plant. —J. C. B.

Selaginella Kraussiana.—This Moss forms such a charming green carpet amongst moderate and tall growing Ferns that one regrets that it should not be in the true sense of the word hardy. The winter before last some healthy tufts of it on a rockery were killed off, but the following summer a crop of young plants sprang up, the result, no doubt, of self-sown spores. It would therefore appear that it might be, so to speak, naturalised in dry, cool, moist spots, provided the surface soil is in no way disturbed. Planting out early enough to ensure a vigorous development, spores would form and thus ensure the perpetuation of the plant. I should add that last winter it in no way suffered, owing its safety, I think, to a friendly covering of snow at a critical moment. —JOHN CORNHILL, *Surrey.*

Anemone fulgens.—I have tried to grow this plant in pots, but with very poor success. It is evidently a plant for the open ground. If your correspondent (p. 63) who has made inquiries about it were to plant some good sized clumps in a warm border, and when they are coming into flower shelter them in very bad weather with hand-lights, he will do better with them than growing them in a frame. When I want to protect them, I put a common hand-light with a movable top over them. The top is only put on to protect them from frost, as if they do not get plenty of exposure to light and air, the flower stems become so drawn as to be comparatively worthless. They dislike, too, being disturbed at the root. If taken up and replanted once in six or seven years, that will be as often as they require. August is a good month in which to transplant them. They are not very particular as to soil, but probably they do better in a light, sandy loam than in any other. To be effective, two dozen bulbs are not too many to form a good sized clump. —J. C. C.

Ranunculus culture.—I cannot remember when I have seen a line written in commendation of this fine old florist flower, and I am a pretty assiduous reader during the intervals of business of gardening literature. I have asked myself, as I now do your readers, Why is this so? Has the rage for "something new" pushed it aside? Or is it difficulties of soil, situation, or general culture that have done this? In catalogues it is studiously passed over as a rule, "Carter's Practical Gar-

dener" being no exception in this respect. As the time for planting is coming round, and as there are few outdoor bedders to compare with the Ranunculists in beauty or brilliancy, I may appropriately direct attention to its culture, with the view of inducing others to do the same. If a few effective beds are wanted the present year's tubers must at once be procured; the variety of colours include crimson, white, yellow, and even black. In any case, a box for seedlings must be prepared any time from this forward; the seeds should be scattered thinly, covered lightly, and put in a cold frame, or even covered, and placed in front of a south wall. It is, in my experience, a mistake to consider the Ranunculus fastidious as to soil and manure. Successful culture is within the reach of anyone with a fairly good loam, moderately retentive of moisture, and with which can be incorporated a part of rotten leaf-mould, or, better, broken and comminuted old cow manure; while if a fractional part of peat-mould be added it will be all the better. The single French, sometimes called "Meladores," produce seed freely, and seed from the semi-doubles is most desirable. I like the fine dwarf Dahlia-like crimson heads of the Turban, and few things grown will prove so showy. If the soil is friable plant say 2 in. deep and 3 in. or 4 in. apart with the claws downwards. Protect the rising foliage from late frosts and never allow the beds to be dry. —W. J. M.

NOTES OF THE WEEK.

CAMELLIAS IN THE OPEN AIR.—A good Camellia, medium sized, with glossy leaves and many buds, comes to us from the garden at The Rookery, Bromley Common, sent by Mr. W. Christison, who says: "The bush which produced it has been growing here against a south wall out-of-doors, and has had no protection of any kind since the buds were formed. Last winter it had the protection of mats nailed to the wall, when it flowered freely late in the spring. We have several more trees full of buds which will not, however, be in flower for some time yet. This tree is over fifty years old, and one of my men says this is the earliest time in the year at which it has flowered, and he has been a garden labourer here for forty-two years. I have not seen any so forward this season elsewhere out-of-doors. This tree about twenty years ago covered a large space of wall; a large portion of it is dead, but it is recovering."

RHOODODENDRON ARGENTUM.—The leaves of this species are more than 1 ft. in length, proportionately broad, and beautifully silvery on the undersides. It is conspicuous among the Himalayan Rhododendrons in the temperate house at Kew for two reasons—its silvery aspect and the fact of its being the first to flower of all the Rhododendrons contained therein, many of the blossoms on it being fully expanded, while those of the others are all in a backward state. The flowers are borne in large dense trusses, and when in bud are deep pink, but when expanded they become somewhat paler.

SENECIO PETASITES.—This is a valuable shrub for conservatory decoration at this season of the year. Cuttings of it struck about this time make very ornamental plants for summer sub-tropical gardening, and if taken up in autumn their fine foliage remains effective throughout the winter. Now we have trusses of bloom, in one instance measuring 1 ft. each way. The leaves, which are nearly round with shallow triangular lobes, have a velvety surface. The flowers are deep orange. —L.

BOMAREA OLIGANTHA IN FRUIT.—This green-house climber, mention of which was made in THE GARDEN at the time of its flowering in the succulent house at Kew, is now when in fruit very interesting. Nearly the whole of the

flowers composing the umbel were succeeded by capsules, which have now burst, disclosing the seeds to view; the latter are about the size of a Sweet Pea, and in colour bright crimson-scarlet. Each capsule contains six or seven seeds, all suspended therefrom by short filaments.

SALVIA LANTANEFOLIA.—This is one of the best of the tender species. In the Cambridge Botanic Garden plants of it about 2 ft. high and nearly as much through have been extremely effective. It is quite unlike any other *Salvia*, and differs with advantage from most of the species in having a compact and dwarf habit. The leaves are very dark green and of considerable substance; the flowers bright rosy purple, with white lines leading down the throat, and though not large, showy because so numerous. Another name by which it is known is *S. Goudoti*.—L.

BEGONIA PRUINATA.—For cutting purposes, especially for large vases, this *Begonia* is well adapted; the flowers, which are white and borne in great branched spikes, although individually somewhat small, are, owing to the profusion in which they are produced, nevertheless very attractive. The plant, which is of a stout, vigorous habit, is one of the most conspicuous amongst the *Begonias* now in flower in the T range of houses at Kew.

LACHENALIA TRICOLOR.—Amongst flowering plants now in No. 4 greenhouse at Kew none are more interesting than some well-flowered examples of this pretty bulb grown in 3-in. pots. Each plant is producing from six to eight spikes of fine flowers, and in this condition is quite a gem.

MESEMBRYANTHEMUM BLANDUM.—This, one of the creeping or rambling species, is valuable from the fact of its flowering at this season even in the temperature of a cool greenhouse. The flowers are from 1 in. to 1½ in. in diameter, composed of several rows of petals, and in colour bluish white. It is now in flower in the T range at Kew.

GREEN ROSES.—We have received from the Rev. A. Rawson, Bromley Common, a bunch of green Roses gathered from a bush in the open air, a fact which speaks for itself as to the unusual mildness of the season. "The Roses," Mr. Rawson says, "have not had the slightest frost, nor are the bushes trained against a wall."

CYCLAMEN ATKINSI.—This *Cyclamen* has been blooming out-of-doors for several weeks in the Cambridge Botanic Garden; it is an extremely pretty kind, and distinct even in foliage. The flowers are white, stained with deep purple about the throat, and the leaves have a much finer marbled zone than those of its immediate allies. This plant is still opening successional blossoms.—L.

ERIOSTEMON DENSIFLORUM.—The *Eriostemon*s, pretty though they are as greenhouse plants, are not now grown so well or to the extent that they should be, for with these, *Boraginas*, and a few other early-flowering hard-wooded plants a greenhouse may be kept quite gay with flowering shrubs at a time when they are much wanted. *E. densiflorum*, a five-pointed star-flowered kind, with orange-coloured anthers, is now finely in bloom in the temperate house at Kew.

SPRING FLOWERS AT TOTTENHAM.—The following are among flowers which may now be seen in the open air in Mr. Ware's nursery at Tottenham, viz. *Colchicum luteum*, bright yellow; *Bulbocodium trigynum*, *Crocus suaveolens*, *alaticus*, and others; *Anemone blanda*, *Galanthus grandiflorus*, *Hepaticas* in variety, *Galanthus*

Elwesi and others; *Narcissus papyraceus*, *Helleborus guttatus* sub-punctatus minor, *H. atrorubens*, *H. graveolens*, *Cyclamen Atkinsi* and varieties. This list, as may be seen, includes several new and rare plants.

HARDY PLANTS AT GLASNEVIN.—The extraordinary mild season we have had is now causing an unusually early and bright display of spring flowers. Many of those enumerated in the following list, such as *Anemones*, *Aubrietia*, *Vinca*, &c., have flowered continuously through the winter. Of all the plants now in bloom, the *Hellebores* are by far the most attractive, there being no fewer than twenty distinct sorts now open, some of which deserve special mention. I still maintain my allegiance to *H. atrorubens*, as the best *Hellebore* for general culture; very free flowering, early and bright, it gives a warm appearance to the borders which the white sorts fail to do. *H. guttatus albo-grandiflorus*, notwithstanding its formidable name, is almost the best white. It is neither so large as *H. niger maximus*, nor has it the substance of the flowers of that variety, but the colour is purer, the shape of the flower far better, and above all it has long flower-stalks which lift the blooms well out of the danger of the splashes, which so frequently spoil its rival. It is also an evergreen species; the hybrid varieties in flower well deserve the praise that has been bestowed on them. Commissioner Benary I consider a specially valuable acquisition to a collection of *Hellebores*. The inside of the flower is white, very richly spotted with a reddish-purple colour; the outside is somewhat similar to that of *H. antiquorum*. *H. orientalis* Dr. Moore is also a fine variety, and much better than its parent. Of the other varieties mentioned, some have green flowers, but must not on that account be considered unattractive. The following were all in flower on February 1:—

<i>Anemone fulgens</i> double and single	<i>Helleborus fetidus</i>
<i>Armeria splendens</i>	<i>guttatus albo grandiflorus</i>
Halleri	<i>graveolens</i>
<i>cephalotes</i>	hybridus F. J. Heinemann
<i>Aubrietia Bougainvillea</i>	Com. Benary
<i>grandiflora</i>	<i>intermedius</i>
<i>greca</i>	<i>laxus</i>
<i>Arhatus</i>	<i>niger</i>
<i>Crocus lageniflorus</i>	<i>n. maximus</i>
<i>velutinus</i>	<i>odoratus</i>
Imperati	<i>olympicus</i>
Sieberi	<i>orientalis</i>
garden varieties	o. dwarf var.
<i>Cheiranthus Semioneri</i>	o. Dr. Moore
<i>Cheiri</i>	<i>pallidus</i>
<i>Chimonanthus fragrans</i>	<i>purpurascens</i>
<i>Clematis calycina</i>	<i>Hazel (Corylus Avellana)</i>
<i>Clematix Lucilia</i>	<i>Iris stylosa</i>
<i>Cyclamen coum</i>	<i>reticulata</i>
<i>Atkinsi</i>	<i>Jasminum nudiflorum</i>
<i>Ibericum</i>	<i>Lithospermum prostratum</i>
<i>Draba hispanica</i>	<i>orientale</i>
<i>Doronicum austriacum</i>	<i>Leucojum vernum</i>
<i>caucasicum</i>	<i>Lunaria rediviva</i>
<i>Dentaria digitata</i>	<i>Milla uniflora</i>
<i>Dephne Mezereum</i>	<i>Omphalodes verna</i>
<i>Euphorbia Helldreichi</i>	<i>Othonna cheirifolia</i>
<i>Erica carnea</i>	<i>Polygala Chamæbuxus</i>
<i>mediterranea</i>	<i>purpurea</i>
<i>Eranthis hymalis</i>	<i>Petasites lobata</i>
<i>Ficaria grandiflora</i>	<i>Pulmonaria grandiflora</i>
<i>Glastonbury Thorn (Crataegus</i>	<i>Prunus californica</i>
<i>Oxyacantha precox</i>)	<i>Primula erosa</i>
<i>Galanthus plicatus</i>	<i>Pyrus japonica</i>
<i>nivalis</i>	}, <i>alba</i>
<i>Hepatica angulosa</i>	<i>Rhododendrons</i> , hybrid
<i>triloba l.-pl.</i>	<i>Saxifraga crassifolia</i>
<i>Mauve Queen</i>	<i>Bursera</i>
<i>Helleborus antiquorum</i>	<i>Rocheliana</i>
<i>atrorubens</i>	<i>Vinca minor</i>
<i>cupreus</i>	<i>major</i>
<i>cyclophyllus</i>	<i>Violets</i>
	<i>Viburnum Tinus</i>
	<i>Veronica speciosa</i>

SPRING FLOWERS IN SUNDERLAND.—I send you examples of a few of the flowers that are trying in this smoke-begrimed neighbourhood to get into bloom. Primroses are getting naturalised by continually sowing seeds of them about the place. The yellow Wallflower is a local strain, of no value for market purposes, but very pretty, and much better at this time of the year

than the dark sorts, being much brighter. The *Laurustinus* has had a hard struggle for life these last three years, but is gradually coming round. Daisies, Dandelions, and Coltsfoot are quite plentiful; so is the Whin (*Gorse*), about a mile from us. You will see by the catkins sent how difficult it is to get anything to grow at all in such a smoky place, to say nothing of the sulphurous vapours from the Tyne, the great centre of chemical manufactures.—P. F.

WHITE ALGERIAN NARCISSEUS (*N. monophyllus*).—From Mr. J. Ferme, Haddington, we have received what is to us the first bloom of the season of this lovely little plant. Its charming white-cupped blossoms appearing at this dull season, make it all the more valuable. Certainly it is worth any extra care and attention to grow it well. Mr. Ferme, we believe, is exceptionally successful with it, and perhaps he could give our readers the benefit of his experience.

A NEW HONEYSUCKLE (*Lonicera Alberti*).—In the December number of Regel's "Gartenflora" just received is a coloured figure and description of a new Honeysuckle, lately discovered by Dr. Regel's son, Albert Regel, in the alpine regions of Eastern Turkestan. It is a dwarf shrub very diffusely branched, and furnished with small, narrow leaves, from the axils of which the blossoms are produced. These are in pairs, star shaped, and of a pleasing rosy lilac colour. This desirable shrub, which will probably turn out to be hardy, we hope may soon be seen in our gardens.

ANEMONES AND OTHER SPRING FLOWERS.—From "St. Bridgid," Hill of Howth, comes a delightful little gathering of spring flowers—*Anemones* (red and purple), *Violets*, *Hepaticas* (double red and single blue), *Anemone apennina*, and scented *Coltsfoot* (*Tussilago fragrans*), all fresh and beautiful, with the following note: "When 'St. Bridgid' reads of the many spring flowers now blossoming in more favoured localities, she feels somewhat envious of the shelter denied her and her flowers on the wild hillside of Howth. Still, her blossoms, fewer and later than from sunny nooks, have this interest, that they show what can be done in spite of difficulties, how strong love is against the ills of life."

PLANTS IN BLOOM AT ENGLEFIELD.—On going through the houses at Englefield Park, near Reading, the other day I saw various *Poinsettias* remarkably well grown. They were chiefly planted out in pits, and were carrying unusually large crests in great profusion. *Euphorbia jacquiniiflora* under similar treatment was also producing very fine sprays loaded with bloom. *Arum Lilies* (*Callas*) are likewise equally well grown. They are planted out in the summer in rich soil, taken up carefully and potted early in the autumn, and put into a temperature of from 50° to 55°. Thus treated, they soon commence to flower, and so continue all through the winter. When I saw them they were a charming sight—not one plant alone, but dozens, and all equally good.—J. CLARK, *Brynkindat, Chirk*.

THE EARLY SNOWFLAKE (*Leucojum aestivum*).—The first flowers of this beautiful spring bulbous plant come to us from Mr. J. Clews, Headfort, Kells—a welcome posy in smoke-begged London. Why is it that such a delightful spring flower is not more common? It is not because it is difficult to grow, for in good loamy soil it takes good care of itself, and increases pretty freely. Perhaps when it can be supplied from our nurseries in quantities, and as cheap as the Snowdrop, the case will be altered. From Mr. Clews also come flowers of the yellow Day Lily (*Emerocallis flava*), which he says has been in bloom for the past fortnight, but of course not in the open air. It is an excellent

plant for the greenhouse, and very different from the ordinary run of plants that adorn it at this season.

GLASGOW BOTANIC GARDEN.—We understand that Messrs. Boyd, of Paisley, have obtained the contract for the range of plant houses to be erected in Teak wood in the Botanic Garden, Glasgow.

TREES AND SHRUBS.

THE MAMMOTH TREE.

IN a paragraph under this head in THE GARDEN of the 21st inst. it is mentioned that many thousand pounds have been spent in planting this (*Sequoia gigantea*) and similar trees without the slightest chance of a good result, except in two or three spots in the length and breadth of the land. There are, of course, favourable places in the south and in mild hilly districts where the tree goes on longer than usual, but even in such any one who has seen it in its native country, even in its young state, must see a wide difference, and signs that the tree is not really at home in England. It wants a warmer and more genial climate, otherwise it will die. Now, I cannot agree with these remarks. I perhaps may be fortunate in knowing two out of the "two or three favoured localities," for I have seen very healthy specimens growing in Reigate and in the Marquis of Conyngham's park, near Canterbury. In the former locality there are some which are about 40 ft. high, certainly not less, and which are as well grown and healthy as trees can be. They have been planted out about twenty-four years, and their roots have long ago worked their way outside any "fancy prepared compost" in which they may have been planted. Those in Bifrons Park, near Canterbury, are also very healthy, fine young trees about 30 ft. in height. The part of the park in which they stand cannot be much over 100 ft. above the sea level, and though tolerably sheltered from the north winds, they are in a damp position, which one would have thought was unfavourable to them. The paragraph I have already quoted goes on to say: "From an artistic point of view the effect of the young pyramidal specimens, as far as they remain healthy, is as poor as it can be." I cannot see that any tree left to itself and allowed to grow as it likes is poor in effect; it may be placed inartistically, but that is not the tree's fault. For instance, how dismal is the appearance of Lombardy Poplars when planted in rows on either side of a straight road, as one so often sees when on the Continent, and yet how effective they are when judiciously planted. I maintain that if *Sequoias* are properly placed and in good health, they are exceedingly effective. I know one in a very charming garden whose fall spine in certain positions crosses the sloping side of a steep hill some half mile away in the most effective manner without in any way interfering with the view, and contrasts well with the more rounded foliage near it.

G. S. S.

Alexandrian Laurel.—This is a graceful little bush, which everybody who cares for an interesting and productive outdoor garden of pretty plants should have and take care of. We have seen a good deal of winter evergreens this year in Covent Garden and elsewhere, and by far the most graceful things are the glossy and elegant shoots of this plant from a garden on the Surrey hills. It is not common in gardens, though it may not be very difficult to obtain, and wants a few years' careful culture before it is established, so that one can cut away freely at the elegant shoots. The plant is nearly allied to the Butcher's Broom, but infinitely more free and graceful in habit, and better in the rich glossy colour of the leaves and shoots. Some years ago we noticed it thrive very well in the gardens around Paris, not objecting to a half-shady spot, and indeed growing very well under such conditions. Its place

in the garden is as an isolated group, or series of small groups among the dwarfier shrubs, and it usually grows from 3 ft. to 4 ft. high. Like the *Asparagus*, to which it is not very distantly related, it, when well established, may be cut and cut again with impunity. A more valuable outdoor plant for indoor decoration when cut there is not. We have shoots in a vase now that have the grace of an airy Willow with the glossy green of the *Camellia*. In the garden whence these shoots come, they are used to dot through the bed of Christmas Roses—a graceful combination, both being evergreen.—V.

Fertilising Aucubas.—Walking through the gardens at Merlin, near this town, the other day, the proprietor, Mr. Fayle, said, as we stood opposite a female *Aucuba* bush literally studded with berries just beginning to colour, "I wish you would ask some of the readers of THE GARDEN how they think a bush yonder (50 perches or more away) came to have been fertilised, though there is no male plant near. I have often noticed and never found a bee to rest on the *Aucuba* when in flower, and the wind rarely blows in that direction." Perhaps this point has attracted the notice of some of your correspondents. We have a number of female plants here, but as we have no male I never see a berry on them, a shortcoming I hope soon to remedy. Those exposed were very much blackened the two previous winters, while those shaded from the sun did not suffer the loss of a leaf.—W. J. M., Clonmel.

SHORT NOTES—TREES & SHRUBS.

Elder leaves.—I gathered some of these out-of-doors this afternoon. I also picked some much fuller twigs of the same bush last week.—DUDLEY H. RIDER, Westbrook Hay, Henel Hempstead.

Waterside trees.—"T. S." (p. 51) says that "Sylvetris" has omitted two of the best of waterside trees from his list, viz., *Cryptomeria elegans* and *Retinospora pisifera*. My experience is in favour of uplands rather than lowlands for conifers. The only one I find really benefited by having water at its roots, like a Willow, is the deciduous *Cypress* (*Taxodium distichum*); that certainly makes double the growth in a swampy place that it does in a dry one.—J. GROOM, Linton.

ORCHIDS.

NEW ODONTOGLOSSUMS.

AMONG recent additions to *Odontoglossum*: we have seen none so strikingly beautiful as some new kinds now in flower in Mr. Bull's Orchid houses at Chelsea. There are four new ones, two of which have received the provisional names *O. illustris* and *O. emiens*. These two are beautiful enough, but they are far eclipsed by another marvellous variety as yet unnamed, which is one of the handsomest and most distinct of the kinds with which we are acquainted. In the bulb and foliage it is in the way of *O. crispum*: the flower-stem is long and arching, and bears about a dozen blossoms. The sepals and petals are long and tapering and of a clear white, heavily blotched with deep brownish crimson; the two lower divisions being almost entirely covered with the dark colour. The labellum is broad and tapering, and is also heavily blotched with crimson-brown on a white ground and surmounted by a clear yellow crest, pencilled with darker lines. It is a wonderfully fine Orchid, and one that will inevitably be much sought after.

The other unnamed kind is a totally distinct plant. The flowers are large and loosely arranged in a long arching spike. The ground colour is greenish yellow, heavily barred with chocolate brown. *O. illustris* is a charming Orchid, reminding one at first sight of *O. hebraicum*, but quite distinct from that species. The flowers are large, with long tapering divisions, the lip broad and serrated, as in *O. crispum*. The ground colour is white, prettily spotted with crimson-brown. The chief portion of the lip is of the latter colour, but char-

gined with yellow. There are a dozen flowers produced on one gracefully arching spike. In *O. emiens* the flowers are of moderate size, with broad sepals and petals, and a beautifully fringed lip. The ground colour is yellow; the markings, which are arranged in broad bars and blotches, are of a reddish chocolate colour. At the inner bases of each petal is a peculiar clouded arrangement of the spots, resembling nebulae. All these new kinds are very handsome, but they are only a fragment of the collection of the genus which now adorns the houses devoted to cool Orchids in this nursery. The elegance of growth, the beauty of colour, and the large numbers of flowers render Mr. Bull's houses a lovely floral exhibition in themselves. W. G.

Saccolabium giganteum excellens.—The ordinary form of this Orchid, beautiful though it is, is not comparable with such a select variety as that known under this name in Mr. Bull's nursery, where it is now in flower. The flower-spike is not only finer, but the flowers themselves are larger and more beautifully spotted. The plant is bearing two huge racemes of blossom.

Oncidium cucullatum purpurascens.—The varieties of this charming little Orchid are very numerous, some much superior to others. One of the finest and most distinct has been named *purpurascens*, on account of the beautiful purple colour of the broad labellum, which is copiously spotted with deep rich purple on a lighter ground. In Mr. Bull's nursery, at Chelsea, there are several varieties in flower, but this one stands out from the others as being exceptionally fine.

Lycaste Skinneri triumphans.—It is well known that *Lycaste Skinneri* is one of the most variable of Orchids with regard to colour, for there occurs every conceivable intermediate shade between intensely deep crimson and the chaste purity of the rare new white variety (*alba*). The instances of the two extreme colours occurring in one flower is somewhat rare, and never had we previously seen such a striking example as a plant now in flower in Mr. Bull's nursery, at Chelsea, called *triumphans*. The flower is larger than usual. The broad sepals are nearly pure white, as is also the labellum, which has a conspicuous golden ridge. Contrasting with the sepals and the lip are two rich crimson reflexing petals, which produce a striking effect. There are several other plants in flower of *L. Skinneri* in the same collection that have the sepals and petals of the two colours, but not so clear and pronounced as in *triumphans*.

Orchids from Bridge of Allan.—Dr. Paterson sends us some beautiful Orchids from his collection at Fernfield. They include a marvellous variety of *Cattleya Trianae* named *Syme*, having been first flowered by the late Prof. Syme, of Edinburgh. It has unusually large flowers. The sepals are not remarkably broad, but the two petals measure over 3 in. across, exquisitely crimped on the margins, and of a delicate blush tint. The lip is large, of an intensely rich amethyst hue, and with a broad conspicuous band of golden yellow in the throat, while beyond that are beautiful pencillings of crimson. Another very fine variety of *C. Trianae* comes with it. It is not remarkable for size, but the almost pure white petals and sepals, and the deep rich tone of the lip produce a charming contrast. It is an imported kind, and was first flowered by Dr. Paterson. Besides these there is a twin-flowered spike of *Lelia anceps*, representing a wonderfully fine dark variety, the sepals and petals of which are almost as deep as the lip, which is a carmine-crimson, surmounted by a golden crest. A flower of *Cymbidium Lowianum* is sufficient to indicate what a really fine Orchid this is when a good form of it is secured.

Dendrobiums.—Will some one state whether it is advantageous to take off the branched pseudo-bulbs? and if so, when and how? Also whether the three-year-old wood should be cut out?—T. A. W.

ODONTOGLOSSUM CRISPUM.

THERE exists such a wonderful range of variation in *Odontoglossum crispum*, or *Alexandrae* (to use its prettier name), that any one who buys imported plants experiences as much pleasure in watching for good forms as the flowers unfold as a florist of the "hard-shell type" does in looking for the high properties of the seedlings of the particular class of plants to which he turns his attention. The finest varieties of *O. Alexandrae* differ in a twofold way; they may be either remarkable for the large size of

now remarkable for their beautiful markings than there were originally imported under the name of Blunt. There is no doubt that Blunt got into the right track for securing those large bold flowering kinds that are now so much prized, but which are not so plentiful as could be wished. But we want all the forms and the more variety the better, for even the poorest among them are lovely. It has often been suggested that these very distinct varieties should be distinguished by a varietal name like a *Fuchsia* or *Pelargonium*, but the cases are not

SHY FLOWERING ORCHIDS.

IN the case of the plants which I noticed in *THE GARDEN* (p. 561, Vol. XX.) as reputedly shy flowering, I briefly indicated what was the usual cause of failure in the case of each, and which in most instances arises through the absence of sufficient light and air during the growing season; on this account the whole substance of the plants is wanting in the solidity essential to free flowering, which, with many species, is the direct cause of their getting into an unhealthy condition. Some kinds, like *Renanthera coccinea*, are so tenacious of life that, although the treatment they receive



Odontoglossum crispum (finely-spotted variety). Drawn December 14, 1881.

the blossoms and breadth of petal, or they may excel in the matter of colouration and marking. The variety here illustrated is not so remarkable for large size as for the exquisite markings so well defined and conspicuous which it possesses. It is a very fine variety, and one which is thought highly of by that admirable judge of Orchids, Sir Trevor Lawrence, who brought it to our office in December last from his famous collection at Burford Lodge, Dorking. Plants of this Orchid imported years ago are stated to be superior to those now collected, but, be that as it may, one point is pretty evident, and that is, there is a larger percentage of forms imported

parallel. If such a procedure were countenanced, we should have a perfect babel of names for one and the same kind, and, on the other hand, it is seldom that the distinct forms can be propagated to any great extent; at any rate, it is slow work. We have lately seen some glorious varieties of *O. Alexandrae*; the other day Mr. Bull showed us a pure canary yellow form so chaste and beautiful as to captivate everyone. The same day Mr. Douglas, of Loxford Hall, sent us a spotless white form quite as chaste and lovely, but this from Sir Trevor Lawrence's is by far the finest marked form that we have yet seen.

W. G.

is such as never to give them a chance of flowering, they will, nevertheless, continue for an unlimited time to keep on growing without the enfeebling effects that precede disease; but such species are exceptional, for it may be taken as a rule that the treatment which induces a free disposition to bloom will invariably be found conducive to a prolonged healthy existence. This view is borne out by what may be seen in not a few places where Orchids are grown in an over-moist atmosphere; some species fall to flower altogether, or if they do produce flowers they are wanting in both quantity and substance. There is no disguising the fact that Orchids are oftener killed by kindness than through carelessness; if they cost

only as many shillings as they usually do pounds, people would have been less timid as regards their treatment. The erroneous impression that few kinds could bear a gleam of sunshine, and that they required to be kept during growth in a semi-saturated atmosphere, has resulted in disappointment as regards the flowering of many and the ultimate destruction of not a few. A more intelligent system of treatment is, however, now being adopted, but still there is room for further improvement in the same direction. Those who have well considered the requirements of Orchids under cultivation, and have seen them in houses exclusively devoted to them, and also amongst other plants where they were much less shaded and more exposed to air during the growing season, cannot fail to have remarked the more satisfactory results which generally attend them under the latter conditions. I have in my mind's eye no small number of places where this is borne out in a way that admits of no mistake, the healthy vigour of the plants speaking for themselves. There are, moreover, Orchids that refuse to bloom altogether if grown too hot; such, for instance, as the Australian *Dendrobium speciosum*, the Brazilian *Cattleya (Laelia) crispata*, *Miltonia flavescens* from the Organ Mountains, *Coloeyne flaccida* from Nepal, and others that might be named; but with Orchids, as with other plants grown under glass, the degree of heat which they will bear is much influenced by the light and air they receive. There are many species that will bear and continue to thrive in a higher temperature than they require, provided they get enough light and air to solidify the growth and correct the otherwise enfeebling influence of the heat, but when, on the other hand, the over-abundance of heat is accompanied, as it too often is, by too much atmospheric moisture and insufficient light, either by overshadowing or the dark character of the house, the plants being too far from the glass, each or all combined, as a consequence leaves and pseudo-bulbs are drawn up weakly, the whole being wanting in that solidity essential to a healthy existence. I have thus far enlarged on the subject with a view to make the treatment I advise be more clearly understood. If the kinds of Orchids that get the name of being difficult to flower would not bloom without exceptional treatment, such as to necessitate their being grown separately from the generality of others, then it would not be worth while troubling about them, but with very few exceptions they can be managed by a course of treatment which will not only secure the desired result so far as they are concerned, but will tend much to a better condition in the greater numbers of other species with which they are associated.

Vandateres.—Occasionally one sees a well-bloomed plant of this distinct and handsome species, the large individual flowers of which are scarcely equalled by any other Vanda; yet it is much oftener met with in a continually flowerless state. There is no Orchid more thoroughly epiphytally in habit, its slender bulbless stems running up quickly and throwing out roots as they ascend that seem little dependent on sustenance from anything beyond the atmosphere which surrounds them. And yet, although it will keep on growing freely from year to year in a high temperature with an atmosphere heavily charged with moisture, still under such conditions it rarely if ever blooms in a way that would more than barely justify the name; whereas if it is grown in an intermediate heat, such as is suited to the generality of *Cattleyas* and *Dendrobiums*, with its head kept constantly within a few inches of the glass, lowering the pot as more head room is required, it will flower well and regularly. It does best in a pot in a mixture of half crocks, ordinary Orchid peat, and Sphagnum, with a stout stick fixed in the pot for support, syringed daily overhead through the growing season, but kept quite dry from the end of October till the flower-spikes show in spring, which they will do about March. Until these are clearly perceptible no water must be given, or the plants will most likely go off again into growth without blooming. The increased atmospheric

moisture and additional heat given with the advancing spring will be enough up to this time, when they may be again syringed once a day. To flower strongly the stems should have attained a height of from 4 ft. to 5 ft. and be strong in proportion. If after blooming at this size it is thought objectionable to grow them on taller, the plants may be cut in two, dividing them at half their length. When so treated the back pieces will break a single growth each, but will most likely require two summers to get strong enough to flower again; for this reason it is better to keep the tops in pots by themselves, and the bottoms in like manner separate. In this way a number of growths can be accommodated in each pot that will flower simultaneously. I have had a single growth of this Vanda 6 ft. high bearing two spikes at a time, one with eight flowers the other with three. The singular form of the flowers, with their large size and the beautiful combination in colour consisting of yellow, purple, and white, is such as is rarely met with in any plant.

Cymbidium eburneum.—This lovely white flowered species scarcely comes within the number of Orchids which have the character of shy bloomers, inasmuch as the too high temperature it was long subjected to did not altogether prevent it from flowering, but kept it in a weakly condition, such as prevented its being seen in the strong vigorous state, which, grown cooler, it attains, producing its waxy white flowers as freely as could be wished, and in place of dying out as fast as imported keeping on increasing in size with dark green healthy foliage that promises its continuing to thrive.

Cryptopodiums.—Of these *C. punctatum* is perhaps the best. It is one of the staliest Orchids ever introduced; its immense erect panicles of yellow, red spotted flowers have a telling effect, being singularly handsome and so different from everything else as to never fail in attracting attention whenever seen, which, I may say, is only at long intervals. So vigorous is it naturally that it will live under treatment that would kill most Orchids. It requires as much room as *Ansellia africana*; its pseudo-bulbs are almost as long and much thicker. It, in common with other *Cryptopodiums*, comes under the head of what are designated terrestrial species, and are said to inhabit the open plains exposed to the full sun; this at once points to the cause of failure in our too often indiscriminately shaded houses, as under such conditions its growth never gets ripened. A shelf at one end of a succession Pine house suits these plants well; here they get the light and air required. I have grown and flowered *C. punctatum* in a span-roofed intermediate Orchid house, keeping it close up to the south end (which was glazed) and fully exposed to the sun; here the bulbs were stout and strong, yet well ripened. *Cryptopodiums* are very free rooting plants; they require good-sized pots, and a mixture of fibrous peat and loam; they should have a long season of rest, during which time they ought to be kept dry at the roots; in the growing season air should be given freely near where they stand, with a fair supply of water to the roots. *C. punctatum* is found in both Mexico and St. Domingo. The flowers last long in a fresh condition.

Schomburgkia tibicinis.—This comes from Honduras, and, like the preceding, will grow and keep in health with very indifferent treatment, but to insure its flowering, like the *Cryptopodiums*, it must be well exposed to the sun during the growing season, or the long horn-like bulbs and hard leathery leaves do not get hardened up enough to produce flowers, but keep on growing from year to year. The individual blooms are large and stout in substance, white shaded with pink, distinct, and very handsome, lasting longer than most Orchids. It is well deserving of cultivation.

Bletia Shepherdii flowers well with cool plant stove treatment, increasing and gaining strength until the flower-spikes attain a length of 18 in. or 20 in., in which condition a good sized pot or panful is beautiful. Its colour, deep purple, is distinct from most Orchids. It thrives well in

ordinary sandy loam with the pots well drained, plenty of light and no more shade than is found necessary to prevent the leaves scorching. It likes a free admission of air daily in the growing season, and enough water at the roots to keep the soil fairly moist.

Dendrobiums.—Most of the *Dendrobies*, including *D. chrysotoxum*, *D. Wardianum*, *D. crassinode*, *D. densiflorum*, *D. Farmeri*, *D. formosum*, *D. nobile*, *D. primuminum*, *D. Pierardi*, with the numerous varieties of the above, and many others do much better in an ordinary plant stove than they do with the usual Orchid house treatment. The extra air they get for a time daily when in the company of other plants with less shade has the effect of their making stronger and generally shorter bulbs, with a greater quantity of flowers, especially in the kinds which bloom from nodes, such as *D. Wardianum*. I have seen better results with these and other *Dendrobiums* grown as I have said along with a mixed collection of stove plants than ever I met with, even where a house was devoted to *Dendrobiums* alone. The small growing *D. pulchellum* rarely flowers under ordinary Orchid treatment, but where subjected to an intermediate heat with plenty of light and air whilst its growth is being formed, it will bloom as freely as *D. nobile*, but to see it in really good condition it must be grown strong, so as to get the bulbs large. To do this all the little growths which annually break from the joints of the preceding year's bulbs must be persistently rubbed off as fast as they show themselves. This naturally causes the young bulbs that spring from the base of the old ones to grow to a much larger size than they possibly can where the strength of the plants is divided into so many channels. It takes two or three years of this kind of management to get a plant with weak bulbs up to the full strength, say with bulbs 12 in. or 15 in. long, which can be done, and when thus well grown the best variety of this neglected Orchid is one of the most lovely of all the *Dendrobiums*, its flowers forming a dense cushion of delicate colour that all but hides the plant. It does best in a shallow basket, in a mixture of peat, crocks, and a little Sphagnum, hung up close to the roof whilst making its growth, during which time it requires plenty of water, a fair amount of air with little shade, and moderate heat; when the bulbs are plumped up in autumn, give no more water for four or five months. Growth made under conditions such as I have named will not shrivel to do any harm through drying, even for so long a time. No water must be given until the flowers have fairly emerged from the bulbs, so that their shape is clearly discernible, or they will most likely go off into growth in the way that *D. nobile* often does.

D. albo-sanguineum is a distinct and handsome large flowering kind, but a delicate plant to manage, not that it does not make growth freely enough in a general way, but it is liable to die off suddenly and completely without any of the dwindling symptoms that usually precede the demise of Orchids. I have seen examples of this *Dendrobe* without any apparent cause begin to rot at the base of the bulbs, and the whole plant was gone in a few weeks; this generally follows its being grown at some distance from the glass, whereas if it is kept hung up close to the roof in a good light house I have never found it go off in this manner. The well known *D. chrysanthum* is so much finer when grown quite cool, such as in an ordinary mid-season vineery where very little fire-heat is used, that it may truly be said that it is rarely seen bearing a tithe of the flowers which it is capable of. When growing it will take a fair amount of water at the root, but it likes a very much drier atmosphere, and equally less heat than it ordinarily receives; so treated, in place of the few straggling flowers it often produces on very long bulbs, it will make these half the length, but much thicker, with from three to four or five flowers at every joint for half the length of the bulbs. When bloomed in this way it stands in the front rank of *Dendrobiums*, and its glossy, Buttercup-yellow brown lipped flowers are particularly handsome. Most of the

Dendrobies that come from the cooler hill districts of India are rarely seen in a condition that admits of their producing the quantity of bloom they are capable of if grown in a house where the atmosphere is thoroughly dried up for several hours in the day, by the admission of plenty of air, such as is given to Muscat Grapes where these are well grown, and receive as they require a considerable amount of fire-heat. In vineries of this description, standing on front shelves, or hung up close to the roof, where the Vines do not cover it so thickly that their foliage shades them too much, I have seen many Dendrobies, and not a few other Orchids succeed in a way that they very rarely do where houses are devoted expressly to them. The reason for this is plain—the free admission of air, and consequent drying up of the atmosphere for a considerable time daily, strengthens and solidifies the growth, as it is made, checking the undue elongation to which the long-bulbed Dendrobiums in particular in a cultivated state are so liable. When the bulbs and leaves have strength and substance infused into them regularly as the work of growth goes on, not only do the plants flower in a way that it is not possible to make them do by any attempt at ripening through severe drying when the growth has been made under conditions that have left it wanting in hard substance, but the plants will be found to increase in size much faster through the numbers of double breaks yearly produced. Let me not be misunderstood: I do not instance the superiority of warm vinery-grown Dendrobiums, or other Orchids with a view to show that the presence of the Vines is the cause; but where Orchids are thus grown in vineries, the Vines are usually the first consideration in the admission of air and other matters, and which, combined with reasonable treatment in other respects, generally turns out to be better suited to the Orchids than the treatment they would receive if grown alone in a house to themselves, and similar results frequently follow where Orchids are grown along with ordinary stove plants.

T. BAINES.

ORCHIDS IN EAST ANGLIA.

WHAT flower at this, or indeed at any season, can equal a feast of Phalaenopside, with Calanthes and Odontoglossums *ad libitum* to boot? That is the treat now enjoyed in not a few places in East Anglia—notably at Henham Hall, Rendlesham Hall, and Drinkstone Park. At Henham the half hundred or so of fine plants of Phalaenopsis are in full bloom. Some of the later plants of P. Schilleriana are not yet open, but amabilis and grandiflora are perfect. These are suspended from the roof of a small stove, which they clothe with beauty and drape with fragrance. On a front shelf near to these splendid plants a row of Calanthe Veitchi is growing in 8-in. pots. These are covered with bloom, and the spikes are so strong that they reach up and almost meet the drooping flowers of the Phalaenopside. The effect is rich and satisfying in the extreme, though but two genera of Orchids are employed. So well, however, are these grown and flowered, that it is gratifying to find the Countess of Stradbroke has been extending her collection, and in a few years it is probable that Odontoglossums, Dendrobiums, Cattleyas, Lelias, Aerides, &c., may be as well—they could hardly be better—done than the Phalaenopside and Calanthes are now. Lord Rendlesham grows a large and choice collection of Orchids, including many fine specimens of Phalaenopsis, which are in full flower. As his lordship cuts many of these for room decoration, there is not, however, the blaze of bloom there is at Henham. At the former place it is thought that the flower-stems rather strengthen the plants; at Rendlesham it is thought they draw the strength from the leaves. Be that as it may, the Phalaenopside at Rendlesham are specially distinguished by the size and number of their leaves as well as by the strength and size of the flower-stems. At the time of my visit the following Phalaenopside and other Orchids were in bloom: P. amabilis, grandiflora, Schilleriana, superba, very fine; also the

far less common P. Porteana. Among Lelias, autumnalis, aneeps, Dawsoni, albidia and grandiflora were in bloom.

The stock of the brilliant Sophronitis grandiflora is unusually large and healthy, and contrasted admirably with the pure white and charming Masdevallia tovarensis. Pleione humilis was nicely in flower, while the large pans of P. maculata showed what they had been, and Cologyne cristata was bursting into bloom in pansfuls of a couple or more yards across. The feast of Odontoglossums was as possible richer than that of Phalaenopside. Among the former was a noble plant of the richly perfumed pulchellum majus bearing nine immense spikes with flowers of enormous size and great substance. O. Rossi majus, O. tripudians, and O. Pescatorei were also in fine condition, while O. Alexandræ (crispum) was simply magnificent in the number and variety of the plants in bloom. This Orchid alone suffices almost to make a midsummer brilliance in January. Several Lycastes were also in flower, while the robust health and spotless cleanliness of the general collection were beyond all praise. Notably among these were many noble Dendrobies, including Bensoniæ, crystallinum, suavisimum, bigibbum, Wardianum, &c., Oncidiums, Cattleyas, Anguloas, Saccolabiums, Aerides, Angrecoms, Phaiases, and Cymbidiums, especially eburneum, are grown in quantities and in magnificent specimens. Altogether the collection grows in interest, size, and value, and affects one in mid-winter like April showers after the aridities of March or May-day freshness and fragrance. The Drinkstone collection of Orchids is much younger than that at Rendlesham. It is only a few years since the proprietor, Mr. T. N. Fowell, took to Orchids, and already several houses are filled with such a promising collection as reflects the greatest credit on his liberality, and the care and skill of Mr. Palmer, his gardener. About the middle of January the following were in flower:—

Angrecom citratum, and the very striking A. sesquipedale
Phalaenopsis rosea, small, but pretty
amabilis grandiflora, very fine
Schilleriana, in great number and variety
Ludlemanniana
Calanthe Veitchi, very fine in pots
vestita
v. rubra
v. lutea
Cattleya Trianae
Mendellii
Cypripedium barbatum
villosum
insigne
Maulei
venustum

Dendrobium heterocarpum
Wardianum
Lelia autumnalis
aneeps
albidia
Phaius grandiflora
Sophronitis grandiflora
Vanda gigantea
Saccolabium giganteum
Pleione humilis
Masdevallia Veitchi tovarensis
Mesospinkidium sanguineum
vulcanicum
Blattia hysanthina, very fine
Meliaria grandiflora
Lycaste Skinneri
Oncidium cucullatum
orthorhynchum
Zygopetalum Mackayi superbum, very fine, and specially late for this

There was also a good plant of the pretty and seldom seen Trichosma suavis, and a flower garden shall I call it of the glorious Odontoglossums. Among the finest in flower were a rich collection of crispum (Alexandræ), Pescatorei, roseum, cirrhosum, tripudians, Halli, pulchellum, Rossi, and R. majus.

It is impossible to look on the beauty and inhale the fragrance of such plants in mid-winter without feeling that Orchids have a great future, and that the time is at hand when they will be held to be equally or more essential to the furnishing of gardens of any pretensions than Fuchsias, Pelargoniums, or Roses.

D. T. FISH.

Sawdust for propagating.—The remarks upon this subject (p. 52) may perhaps induce many to try sawdust for propagating purposes. Certainly I should never have conceived the idea of sowing seeds in it, but I know that soft-wooded cuttings root in it with great freedom, and I can easily believe that it may have the same stimulating effect upon the seed as on the cuttings. When in France I saw much use made of sawdust for spring propagating; one good propagator whom I knew employed scarcely anything else. In a large trade establishment, too, Dracænas, Ficus, Aralias, and similar subjects were inserted

in a bed of sawdust over the pipes, where they struck well and quickly.—J. C. B.

KITCHEN GARDEN.

THE CHINESE YAM.
(DIOSCOREA BATATAS.)

ONE of the few vegetables that are not so much appreciated in this country as they might be is the Chinese Yam, a tuber suitable in a variety of ways for winter use. It is now regularly and largely imported from the Azores, and sold in the London markets, and a fair trade is done therewith; but, as few of these Yams reach country places, the plant is well worthy of a little space being devoted to its culture. One objection to it is that being so deep rooted there is more labour attached in lifting the tubers than there is in the case of Potatoes; but that need be no obstacle. It is an easily grown plant, but there is no need to enter into any details regarding its cultivation here, as an excellent article on the



Chinese Yam (flowering stem and tuber).

subject appeared in THE GARDEN a few weeks ago by Mr. J. C. Clarke, of Cotelstone, to which all interested in this matter can refer.

W. G.

Aigburth Brussels Sprout.—I have this growing side by side with Strymberg's Giant, and find it superior to the latter, both as regards evenness of size and cooking qualities. If grown on very rich land (for instance, that on which Celery has been grown) it may grow too large (as in my opinion we have got far enough advanced as regards size in this vegetable), but if grown on ground from which Beet or some other autumn root crop has come, it will produce good, compact, and finely flavoured Sprouts, ranking in value with such sterling good vegetables as Veitch's Autumn Giant Cauliflower and Osborn's Forcing French Bean.—A. BROWN, Faringdon, Berks.

Worms in manure.—These should be got rid of, particularly if the manure is intended for potting purposes. The best way to effect this is to turn the manure, and add to it while doing so a few bushels of gas lime, that is, lime from the purifiers through which gas has passed, and which will consequently be of a greenish colour. This will improve the quality of the manure as a fertiliser, and quickly free it from worms, large and small. Whether it kills them or drives them away I am unable to say, but at all events they disappear. A similar result may be obtained by well watering the heap with strong lime water, but gas lime, if it can be obtained, is best.—P. G.

Surface-planted Potatoes.—For some years I have seen Potatoes planted within 2 in. of the surface and earthed up at the time when

they were planted. Thus treated they have invariably produced a finer crop, of better quality, and at least a fortnight earlier than those planted at the usual depth of 6 in. or 8 in. The method adopted was to draw a line with a hoe 2 in. deep, and in this to insert the sets, which were covered up in the usual way. When they are about 4 in. in height another earthing up is given them. In wet and tenacious soils, where Potatoes have been grown side by side under both systems, the surface-planted ones have yielded nearly double the quantity that the others did, and much freer from disease. Those who have not tried this system will do well to try a few on it this year.—J. RIDDELL, *Westonville*.

Mushrooms out-of-doors.—In reply to "Sylvestrus" (p. 43), allow me to say that the quantities stated were gathered from two beds, each 30 yards long, occupying 90 ft. by 12 ft. of ground. The quantity sent does not, however, represent the whole of the produce of the two beds, as they were in bearing about a month before the very severe weather set in. The statement was merely made to show that Mushrooms could be grown out-of-doors even in such a severe time as January and February last. As to comparing indoor with outdoor Mushrooms, I can safely assert that with the same amount of manure beds out-of-doors would produce quite half as much again in weight as beds indoors. I shall very shortly give the weight of Mushrooms grown from 500 yards' run of bed; also every particular as to manure, making and general management of the same, and also the space of ground occupied. Every grower will therefore be able to make comparisons; and if there are any better methods than mine, I shall be only too pleased to adopt them.—J. T. BARTER.

Clay analysis.—Can anyone tell me where to find an analysis of Atherfield clay, which in places occurs at the edge of the weald?—R. W.

LA MORTOLA, MENTONE.

ABOUT two miles from Mentone, travelling towards Italy, one passes the frontier and enters Liguria, one of the Italian states; two miles more and we reach the small village of Mortola high up above the shores of the Mediterranean. Close to the surging waves of that tideless sea, and upon a rocky promontory, stands the Palazzo Orsengo, the residence of Mr. T. Hanbury. Here he has laid out a garden on the slopes running from the main road down to the house, perhaps a warm corner as any that could have been selected in the whole of the western Riviera. The garden, which is open to the public on Mondays and Fridays, contains plants from many countries—from Australia, Africa, Abyssinia, Central America, and elsewhere. They grow here in the greatest luxuriance without any other protection than that afforded by the surrounding mountains. The soil is a light loam, the product of the natural disintegration of the rocks around. I noted on the 15th of this month (Jan.) several plants in bloom, such as *Sparmannia africana* with twelve flowers on a stem; the rare *Acacia trinervata*; *Cycas revoluta*; *Linum trigynum*, masses of gold; the *Eunonymus* covered with bright red berries; the white *Brugmansia*, 20 ft. high and plentifully furnished with blossom *Othonna Athanasia*, covered with glowing yellow flowers; *Bougainvillea*, loaded with pretty mauve inflorescence; and *Agaves* and *Yuccas* in profusion. Associated with these were also the Shark-jaw Cactus in full flower; the crimson-blossomed *Salvia cardinalis*, *Kennedia alba*, and *Bignonia equinoctialis*, with seed-pods at least 1 ft. long. *Solanums* were dotted all over with scarlet berries certainly twice the size of any I have seen in England. On *Lavandula dentata* there were also masses of purple spikes. This Lavender rarely blossoms in the open air in England. *Heliotropes* finely in flower run up anything they come near from 20 ft. to 25 ft., scenting the whole garden. *Genistas* and *Daffodils* are everywhere in flower. A large bed of *Anemone* containing variously coloured flowers is most effective; they grow here naturally, and are allowed to spread in all

directions. Bushy plants of *Coronilla pentaphylla* had a fine appearance, as had also a large undergrowth of Roman *Hyacinth*, apparently growing here wild. *Aralia papyrifera* is now splendidly in flower, and the various kinds of *Eucalypti* seem here to be quite naturalised. At the bottom of the garden is a pretty aviary surrounded with climbing *Roses* and *Mignonette*. Winding our way up the terraces, one is confronted with *Grevillea longiflora* glowing with orange-coloured blooms. The Norfolk Pine also succeeds here, and I noticed a magnificent *Abutilon* covered with pendent veined red bells. The growth which the prickly *Pear* makes here is marvellous. Altogether even thus early in the year this garden is full of interest to all who are fond of flowers and plants remarkable for their singular growth or fine foliage, or such as are of economical or medicinal value, of which it contains a fine collection.

G. W. SEPTIMUS PIESSE.

THE ELECTRIC LIGHT AT THE CRYSTAL PALACE.

THE effect of the electric light on the surrounding vegetation here is charming; in fact, the southern nave looking from the kings' and queens' screen towards the central transept becomes, through its help, quite a fairy scene. The concentrated brilliant light thrown on magnificent specimens of tree Ferns, and reflected from the water in the tanks, is in the highest degree effective. The floating foliage of the Water Lilies and other aquatics, and the groups of ornamental foliaged and flowering plants in the vases, are thrown into striking relief, as are also the larger subjects, such as *Camelias*, *Oranges*, and more particularly the Norfolk Island Pines on each side of the ornamental tanks, and even the climbers on the columns; these are all shown up in an exquisite manner. The gigantic Alexandrian Laurel (*Ruscus androgynus*), a mass of the densest and deepest green, forms a noble object under this light, which seems to render all beyond its radiance obscure, thereby confining the vision to a given space, in which every line and feature is brought out with peculiar distinctness. The north end, with its gigantic tropical vegetation, will afford another glorious sight when the illuminations have been completed; but at present they are not sufficiently advanced to show off surrounding objects to such advantage as the south end. Workmen have for weeks been employed in making the necessary arrangements for working the different systems, and when finished, the Palace by night will be a sight worth seeing. B.

Economy in heating.—Avoid all the numerous patent boilers, especially if of wrought iron. If you must have a boiler, have one of cast iron. I recommend a coil, provided it be built in a domed furnace of fire-brick, with closed ashpit. Have a door on a level with the firebars to light the fire in the first instance, and to clear away clinkers; another door to feed from top, and when once you have got your bricks hot, like a baker's oven, without a speck of unburnt soot, feed only in small quantities at a time; close your ashpit door and also your chimney-damper to within 1 in. I have now two coils working; one of them I had lately in place of a 3-fue boiler, and I have, or rather had, two others—one a saddle boiler and the other a common wagon boiler. The coil boilers do double the work with the same fuel. I heat 300 ft. of 4-in. pipe with a coil, carrying in it about 32 ft. of 1½-in. steam pipes. I made this myself, and have been so successful that I am just starting another in the place of a wrought iron saddle boiler, which has only been down five years and gave way on the side flues, the smoke having entirely eaten the boiler away in that part, the bottom being as sound as it was when new. The real truth is that with slow burning side flues cannot stand the smoke at the comparatively low temperature that the smoke goes up the chimney. Iron of some sort seems a necessity for heating water, but iron everywhere else carries too much heat away. As

firebricks are dear, I am going to try whether I cannot line a furnace built of ordinary building bricks with a coating of fire clay dried and pounded to dust, and mixed with liquid silicate of soda. All I can say is that, according to my experience, the coil properly placed in a furnace is a good 25 per cent. cheaper, in fact, than any of the three boilers I have had for the last five years.—K. B.

GARDEN FLORA.

PLATE CCCXXIII.—MASCARENHASIA CURNOWIANA.*

THE name *Mascarenhasia* has been designated "dreadful," and it is rather long; but its six syllables are not so very formidable after all. *Mascarenhas* was the name of a Portuguese navigator, who discovered the Isle of Bourbon in 1545, and to whom A. de Candolle dedicated the genus, of which our plant is a member, some three centuries later. This is the history of the name, and we venture to predict that nobody will object to the association of the name of one of those early navigators with a plant from the region of his discoveries. The specific name commemorates the discoverer of this particular species, through whom Messrs. Low introduced it; therefore, so long as we are to have dedicatory names, none could be more appropriate. And now a little digression in geography as to the application of the name *Mascarene Islands*. Originally, perhaps, it may have been restricted to Bourbon; subsequently, however, it was, and has been, the collective designation of Bourbon, Mauritius, Rodriguez, and other islands east of Madagascar. Now it is employed by some writers in a more extended sense, and includes Madagascar.

About six species of *Mascarenhasia* are known—all of them restricted to Madagascar; and *M. Curnowiana* is, so far as we can judge from dried specimens, the most attractive of them, though its flowers are not so large as those of two or three at least of the others. In graceful habit it resembles a *Jessamine*, but it is much more nearly related to the well known *Trachelospermum* (*Rhychospermum*) *jasminoides*, near which it is placed in the natural arrangement. It has the reputation of being both a free grower and a free bloomer, and these indispensable qualities, associated with elegance and brilliant colour, should ensure this novelty a great future.

W. B. HEMSLEY.

[Messrs. Hugh Low, in whose nursery at Clapton our plate was prepared last December, write: The *Mascarenhasia* seems to grow very freely and to bloom abundantly, and the flowers have the good property of remaining a long time in perfection. It thrives well in a mixture of three-parts loam and one-part good, fibrous peat, with a little sand, and it luxuriates in a moist, warm temperature. This plant was awarded a first-class certificate by the Royal Horticultural Society last August.]

Summer treatment of Poinsettias.—For some time we have been increasing our stock of these, and next winter I hope to have a good 200

* *Frutex scandens vel vagans, preter flores unguis glaberrimus, ramulis ultimis floriferis gracillimis, teretibus, cortice viridi. Folia opposita, breviter petiolata, tenuia vel saltem vix coriacea, supra atroviridia, subtus pallidiora, oblonga, cum petiolo usque ad 4 poll. longa, apice acuminate, obtusiuscula, basi saepius rotundata (uncu cuncta ut in icone), venis primariis transverse prope marginem acutius anastomosantibus. Flores kermesino-rosei, ad 2 poll. diametro, breviter pedicellati, in apicibus vel furcis ramulorum 3-6 aggregati; pedunculus communis linearis 3-4 longus; bractea parva, squamiformis; calyx glaber, parvus, glaucus; bractea parva, squamiformis, margine scarioso; corolla hypocrateriformis, extus omnino glabra, intus fauce barbata, limbi lobis undulatis, acuminatis; stamina inclusis, filamentis brevissimis, barbatis, aequis subulatis; ovaria glabra. Pollinella a nobis non visi.*

YAS AGRI
AGRICULTURAL
COLLEGE

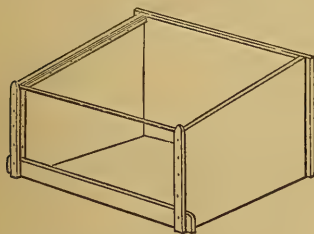


MASCARENHAISIA CURNOWIANA.

to look at and cut from. Some who saw our dwarf big-headed plants lately complained that theirs had very long bare stems, which they did not admire. Poinsettias, however, seem naturally inclined to assume that form, especially if kept in a warm, close atmosphere far from the glass when making their main growth. The only way I know of avoiding this and keeping them dwarf is to grow them in shallow, cold frames from June until September. If they are put into a frame about 18 in. deep when about 6 in. high, and ventilated and shut up with care according to the state of the weather, dwarf, robust plants will be the result, and when they come to be put into more heat in October or November, their heads will be none the smaller or dimmer in colour through the cold frame mode of treatment.—J. MUIR.

NEW HAND-GLASS OR SMALL FRAME.

ANNEXED is an illustration of a small frame which I have found useful at all seasons, but especially in autumn and spring, for striking cuttings. It is formed of $\frac{3}{4}$ -in. deal board; the pieces are not framed together but simply nailed, so that they can be easily taken to pieces, if it was thought desirable to do that, either for removal to a distance or to stow away. The back projects beyond



the sides $\frac{1}{2}$ in. to make the nails hold firmer, and the narrow piece in front and the sides are secured by being halved to each other. Small strips of wood are nailed to the front ends of the sides, which, with the addition of another inside, form a groove for the front pane of glass to slide in. The pane at top is supported by a rabbit formed by other and wider strips fastened to the sides about $\frac{1}{2}$ in. from the top, and the front of the pane rests on the glass below, overhanging it by about 1-8th in. The frames are made to suit the dimensions of the panes of glass used in my greenhouse, a supply of which is always kept in case of accident. The dimensions are 14 in. by 12 in., and one cut down the middle lengthways makes two front panes, so that three of them will supply glass for two frames. The front pane slides down the grooves on either side, and rests on the wooden base below.

The best thing for the frame to stand on is a piece of flat stone or slate, or some material which will not be affected by the damp. On this I place a layer of wet Cocoa-nut fibre and silver sand, and hereon stand twelve 3-in. cutting pots. Such frames are easily made, cost but little, and give free admission to the sun's rays, and this is especially beneficial when it is thought desirable to shade the foliage of the plants by placing a piece of paper or other material on the glass at the top.

They will also be found useful to afford temporary spring protection to Vegetable Marrows and other plants when first turned out of their pots and placed in the open borders; but for that purpose the frames are best made to allow the glass to cover the back board by making it $\frac{1}{2}$ in. less high, and shortening the lengths of the sides in the same proportion. The ends of each piece should be painted before they are nailed together, and the whole should have at least two coats of paint if they are intended to be used in the open air. Two such frames, and that is all I have at present, will be found to do the work of many bell-glasses, and do it more effectually. It will be

seen that to get at the plants inside you have only to raise the top pane of glass. B. S.

FRUIT GARDEN.

THE APPLE.

(Continued from p. 72.)

Insects.—The worst insect enemy to the attacks of which the Apple is liable is what is termed the American blight, a cottony looking substance, which occupies every crevice of the bark, and when once fairly established difficult to eradicate. Perseverance in scrubbing the stems with hard brushes will, however, check its progress, and soap-suds applied with force by a powerful garden engine will extirpate it. I have also found Gishurst Compound to be effectual in destroying this pest. When the trees are dormant it may be applied strong enough to kill any kind of insect, say 8 oz. to the gallon, without injury to the tree. As this blight goes under ground, and attacks the roots as well as the tops, it will be advisable in extreme cases to uncover the latter as far as they seem affected, and remove the soil entirely to some open field. After a thorough cleansing substitute fresh soil, which will have the effect of giving the trees a fresh start. Paraffin oil is one of the cheapest and most effective insecticides we have, and if the stems and affected branches are washed with a strong mixture of this and water, but little blight will be seen the following year.

Green and black fly are sometimes troublesome in the case of young trees, especially in nurseries, where in whole quarters the leaves may be seen coated on the under-sides with fly, and if not destroyed they greatly check growth. Dipping the affected parts in Tobacco water, Gishurst Compound, and other liquids, or deluging them with these by means of the garden engine, are the remedies usually employed. Dusting the leaves when damp with snuff or Tobacco powder will also greatly check their progress, as will likewise keeping the surface soil stirred, and as much as possible promoting vigorous growth.

Mussel scale sometimes gets established on the bark. When that happens brushing with a very hard brush will greatly reduce its numbers, and painting the stems with clay, soft soap, and a strong dose of paraffin or Gishurst Compound will, by following it up for two or three seasons, quite clear the tree, and the wood will assume a healthy, shining appearance, a certain precursor of health and fertility.

Caterpillars and weevils.—These are usually worse in orchards in which the ground is dug than in those carpeted with grass. The immediate destruction of grub-eaten Apples that fall on the ground is doubtless one means of reducing some kinds, and in all cases where the trees are much affected it will be well to break the surface soil up well in frosty weather; birds will then search diligently for them in the freshly-broken soil. In the growing season only hand-picking is of much avail, and that is a tedious operation. Scraping and cleaning the stems and painting them with various insecticides, although only aimed at the destruction of one of these pests, will indirectly help to free them from all of them. A somewhat primitive mode of clearing the trees of these pests and manuring them at the same time is practised here, viz., folding pigs under them in pens made of iron hurdles, that are moved every few days. The pigs, having no rings in their noses, turn up the soil in quantities equal to ploughing. Pigs will also clear the land of all kinds of roots, such as those of Dock and other noxious weeds, and the crops of clean

fruit borne on trees thus treated is the best argument in favour of its efficiency.

Renovating neglected trees.—There can be no question that many of the ills that befall our Apple trees, and which cause them to fail in producing regular and abundant crops, are clearly traceable to neglect. Although a great revival has taken place in hardy fruit culture within the last few years, it is by no means uncommon to find trees in all parts of the kingdom that never get the slightest attention from the time of gathering one crop until the next is ready. All is left to chance. If the soil is good and naturally well drained, they may bear fairly well for some years; and if they fail, there is always the ready excuse, viz., our wretched seasons. Nevertheless, it may happen that the next neighbour has good crops and few failures; but in this case the trees have been carefully tended from the first day they came from the nursery. The Apple is not so transient that even the longest lived among us need replant orchards more than once in a lifetime; and if the directions laid down in previous papers with regard to the forming of new orchards or fruit gardens are followed, there need be little fear that the result will be unsatisfactory. It is in the case of trees that as regards age ought to be in their prime, but which from neglect are prematurely old, and apparently worn out, that diseases and insects are most troublesome.

Where orchards are under-cropped with bush fruits, the trees are more quickly brought into a debilitated condition than in any other way, owing to the close system of planting adopted, and unless heavy dressings of good manure are applied every year, the bushes soon take all the nutriment out of the surface soil, and the trees are driven to send their roots more deeply into the ground than is good for them, inducing sappy, unripened shoots, that easily fall victims to canker. It is the little wiry top roots that feed the fruitful spray that we want to encourage and keep at work near the surface. A few years ago an orchard crowded with bushes and rubbish growing right into and choking the lower branches of the Apples came under my charge. The first thing to be done was to grub all the bush fruits up by the root, and burn them in the open spaces along with Couch Grass and weeds. The centres of the trees were also cleared of dead wood and weakly growths, and all erect growing shoots were shortened; the stems were cleared of Moss, and the branches dusted with lime-wash. Several of the oldest trees, too, were cut out entirely to let in air to those left, the greatest bane of orchards being too thick planting. The soil was levelled and left quite loose, the first season keeping it hoed and raked, so as to get it thoroughly clean. Next winter the trees were looked over, and where the shoots were strong they were shortened. Trees not of approved sorts were cut back for grafting, which was done on the small wood, about 100 grafts being put on a fair sized tree. In this way a good head was quickly the result. A good dressing of manure was then spread around each tree and lightly forked in, and in the spring following the ground was sown with Grass seeds. This orchard has been very little trouble since then, and it has produced heavy crops ever since it has been renewed. Trees in good bearing order require but little pruning—only just a look over annually to keep the centres clear, and to top erect growing shoots. Trees that have been regrafted need thinning out and treating exactly as recommended in the case of young trees; they usually form flower-buds very abundantly, and are very prolific after the third year from regrafting. Feeding the Grass under them close off with sheep, and bringing in all kinds of garden green crops to augment their supply of food,

help the trees very much. We also use road scrapings, old potting mould, or any kind of mixed manures, carting them on in winter and spreading them on the surface. I have no hesitation in saying that the more manure we apply the finer and heavier are our crops, and the less are we troubled with diseases and insects. They are unable to successfully attack trees in vigorous health.

Orchards on Grass.—These are much more favourably circumstanced than under-cropped orchards, owing to the trees having the soil to themselves; but if the Grass is cut and carried away it is questionable how long they will remain healthy and fruitful, *i.e.*, if manure be not pretty freely applied to replace the removed Grass. The same measures as to pruning and cleaning of stems and branches as in other cases must be adopted. The turf should be taken off as far back as the circumference of the branches, and the exhausted soil thrown out until the roots are reached, when a good coating of manure and fresh loam mixed together may be applied to them, the old soil being spread on the surface. This will soon produce a good effect, and when the trees are restored to vigour they should be maintained in a fruitful state by rich surface dressings that are easily applied, and especially by the cheapest and most profitable mode of dressing of all, *viz.*, close feeding off with sheep, particularly by making the orchard their winter as well as summer quarters, and bringing Turnips and other roots, oil cake, hay, &c., to supplement their food. The trees under such conditions find plenty of rich food close to the surface. I may mention that those who may still look upon manure as the forerunner of disease in fruit trees should see orchards about here that are dressed with night soil, sewage, &c., and note their healthy look and the exceptional crops they carry. The place to look for insect pests and other ailments to which Apple trees are liable is where poverty of soil has predisposed the trees to their attacks.

Renovating dwarf trees.—Apple trained as dwarfs and kept closely cut or pinched in may be reinvigorated with the greatest certainty by lifting them carefully with all the fibres that can be got with them, and after cutting back the coarse roots to moderate limits replanting either on entirely fresh ground, or in holes filled with fresh soil. They should be treated thus as early in the month of October as possible, and as soon as replanted have a good coating of manure laid over the roots. The old hard spurs may be thinned out with a small pruning saw, and the remainder shortened in considerably. Trees on trellises that fail to produce fruit of first-rate quality will be greatly benefited by undergoing this process, and if on the Paradise stock, as all these dwarf trees should be, they will scarcely feel the check. Being surface rooters, they are generally well furnished with fibres. After replanting, the leading shoots may be shortened about one-third, and the spurs thinned out, when the trees will rapidly recover their energy; but to keep them in good bearing condition they must have first-class treatment. Anyone having a good collection of good dwarf Apples in a favourable situation must make up their mind to keep the soil free from other crops, the same as a Vine border, and mulched and treated with equal care. Apples, whether in orchards or gardens, repay careful culture as well, or even better, than any other cultivated fruits.

JAMES GROOM.

Pruning old orchard trees.—“A Grange Gardener” is wrong in saying that old orchard trees do not want pruning. Nine years ago I took charge of an orchard of Apple trees; they were

so thick that one could hardly get one's hand in to pick the fruit they bore, which was hardly worth calling fruit, it was so small and tasteless. These trees I pruned, and that so severely that the following February every branch left stood out separately. And now for the results. The first year I had a medium crop of fair sized fruit, but the next the crop was so satisfactory that it made 5s. per bushel at the foot of the trees. I did not find, moreover, that they made more foliage, except in the case of young shoots springing out of the old wood, and which were easily rubbed off in the summer. Three years afterwards I went over the trees again with saw and knife, and we never have had a failure even in these late, unfavourable seasons. I intend doing the same this February. “A Grange Gardener” says, wait three or four years and mark the result. I have waited that number of years, and find the result all I could desire.—A ST. ALBAN'S GARDENER.

VERTICAL CORDONS.

A NEW manner of training fruit trees in vertical cordons with single stems has been introduced of late years by some of the nurserymen; and this system appears very fascinating to the owners of small gardens, enabling them, as it does, to cultivate many varieties of fruit in a small space. Many of our readers, like myself, would doubtless be thankful to receive instructions from some fruit grower who understands the system as to planting, pruning and general treatment of the trees in question, so as to keep them healthy and productive for any lengthened period (if indeed that can be done), and also to be informed where to get the wire fencing, and how to put it up.

CONSTANT READER.

—The cordon system of training was introduced some years ago from France, but whether we do not bestow the pains on fruit tree training that the French do, or the system is too artificial for British tastes or not, I cannot say, but certain it is it does not meet with that amount of favour which it did on its first introduction. We have given it a fair trial, having trained Apples, Pears, Peaches, Apricots, Cherries, and Plums in vertical, horizontal, and oblique cordons, and with what results may be surmised when it is said that we have given up all these forms with the exception of the oblique. In this way we grow Apples and Pears only, and for these the cordon system is to be commended, particularly to those whose space is limited and who desire variety; indeed, the one great merit of the cordon system is being able to have six or more varieties, consisting of early and late kinds, instead of one variety, early or late. As to keeping the trees healthy and productive for a lengthened period, there is no difficulty about that, provided they are liberally treated to surface dressings of new soil and mulchings of manure. We have numbers of Pears, planted thirteen years ago at 18 in. apart, only confined to one stem, trained obliquely on a wall 15 ft. high; these bear annually very heavy crops of fine fruit, and are just as healthy and vigorous as they were the second year after planting. The treatment which these trees receive is as follows: They are every winter fresh top-dressed with maiden loam, and over this is put a thick covering of stable manure; this is allowed to remain the year round, and is of equal service as a protector from summer drought as it is as a manure. As to the pruning required, in winter there is virtually none, as the points of the shoots are constantly pinched back to within one or two joints of the former pinching. This constant repression of growth conduces to the formation of fruit buds, and also keeps the spurs of the trees—to use a technical term—“close home” necessarily in course of time, and in spite of such constant repression, the spurs will get long, and in such cases a few of the longest should each winter be cut off to within one or two buds of the main stem. In this way the long spurs may all be gradually removed, and yet the trees continue to produce abundant crops of fruit. We give preference to the oblique or slantwise mode of training over the vertical, because of the

greater length of stem thus gained. We have many Apples and some few Pears trained on fencing and treated exactly as the trees are on walls, and the results are very similar. As to fencing and fixing, any wire merchant would gladly do that.

W.

KEEPING LATE GRAPES.

THAT variety in this matter is more than half the battle is abundantly evident this season. Seldom have late Hamburgs kept worse; so badly, in fact, did they keep in the late autumn or earlier winter that the markets were glutted by the rush to get rid of them before they rotted, and yet some not only profess to be able to keep Hamburgs till February or March, but a few actually succeed in doing so. They are, however, very few. The excessive rainfall and mildness of the weather that destroyed so many late Hamburgs do not seem to have seriously affected the sound keeping of the more popular and useful late Grapes. Among these there can be no doubt that the Muscat of Alexandria, Mrs. Pince, Alicante, and Lady Downes are the very best. The Muscat of Alexandria keeps well or otherwise very much in the ratio of its perfect or imperfect maturity. Indifferently ripened and full of juice, few Grapes spot and decay sooner. But finished off with an amber tint in a dry atmosphere and slightly shrivelled, this best of all Grapes will keep almost as well as Lady Downes, and if possible it improves by keeping, although the improvement of a perfect Muscat may be held to be on a level with the painting of the Lily or the Rose. Mrs. Pince is also a capital keeping late Grape. In visiting several large private gardens about the middle of last month, I was very much struck with the excellent condition and perfect state of preservation of this fine Grape; with a flavour second to that of no black Grape, it may also be said to keep about as long as any of them. It seems also to keep longest when not of the blackest, and, like Hamburgs and several other black Grapes, it loses colour, though not flavour, by keeping. This is assuredly one of the most valuable of late black Grapes, and those who esteem the Alicante at its best somewhat watery and the Lady Downes leathery, can hardly do better than try Mrs. Pince. It must, however, be added that in some situations it sets indifferently, and in others has a provoking tendency to shank. But where it does well it is without doubt a first class Grape at any season, and one of the very best late Grapes. I have generally seen it in the greatest perfection grown with and receiving the same treatment as Hamburgs. The Alicante is too well known to need extended notice. I should place it in the very first rank of late Grapes alike for quality and appearance. No one will challenge the latter, as bunch and berries are as near perfection as may be, but there is a divergence of opinion about its quality, and it must be admitted that the latter varies widely as to the soil and culture it receives. But well-grown and thoroughly finished, there are few finer or more refreshing Grapes than the Alicante. Of course, unlike Mrs. Pince, Snow's Muscat Hamburg, or Madresfield Court, it has none of the exquisite bouquet of the Muscat, but its flesh may be described as at least moderately sweet, juicy, and sparkling, and the skin thin for a late Grape. Lady Downes deserves all the praise it has received as a capital traveller and the longest keeper of all. Its dry, firm flesh is, in fact, as it were, encased in self-manufactured air-proof leathern bottles (thick rinds), that will preserve it fresh for almost any length of time, and it also looks very well on the table. Should anyone think this description derogatory to this valuable late Grape, I must plead as excuse that I have just risen from a tasting of Alicante, Mrs. Pince, and Lady Downes, all in good condition, and the latter ate like leather after the other two. But the relative merits of these late Grapes is doubtless controversial ground, on which I have no wish to dwell. Most readers doubtless agree with me that the four Grapes named are the most valuable for late purposes, and that those are fortunate who have sufficient of all or any one of

them to carry them through till the new Grapes ripen. D. T. FISH.

RAMBLES OF A PLANT COLLECTOR.

(Continued from p. 21.)

Sapporo.—All sorts of English garden flowers were planted in the little gardens in front of the houses down the first street or road of the town. We came to the Sapporo river, over which is a double spanned wooden suspension bridge; the centre pier having given way we could only get over on foot, sending our horses and baggage over by ferry boat. The stream was very rough and swift, coming from some mountains near. The Japanese were gaffing salmon as they passed up the rapids near the bridge. A long bamboo was held in the water with a lot of gaff hooks fastened on the upper side; the man gave a jerk towards him when a fish passed over the bamboo, and seldom failed to catch his fish. I bought a fine salmon for 15 cents, or about 6d., weighing about 8 lbs. The town of Sapporo is situated twenty-five miles from the sea coast, on the side of an immense plain, thickly wooded and the soil wonderfully rich, with numerous rivers passing through, all very swift. To the south and south-east are five mountains covered with forest, varying from 1000 ft. to 5000 ft., so that the scenery in that direction is very fine. To the north-east about forty miles are the Ishicari Mountains, the highest range in the island. They run from south-east to north-west and terminate in the north-west corner. The whole of the west side is an immense flat as far as the Ishicari river. Why the Japanese chose a spot like that on which Sapporo now stands I cannot conceive. There is no communication by river to the sea; no good road to Otarana on the sea coast; whereas, if they had gone 10 miles further north they would have had one of the finest rivers in the country for a port, and shipping could have come up easily. Everything has to come either from Hakodati, some 150 miles over land, or by sea to Otarana, and then dragged over a bad road 25 miles. They have, I think, already discovered their mistake. The Japanese being Rice eaters, and Yezo being too cold for its cultivation, it has to be brought from the main island of Japan; and, therefore, living is expensive. They grow Peas, Beans, Maize, Potatoes, Wheat, Barley, and I saw some excellent crops. The Government have formed vineyards, hop-gardens, a school of agriculture under a practical farmer and three professors from America. They have also a practical gardener, who has done good work in planting their orchards and making a fine garden. Apples, Pears and Cherries appear to grow splendidly here. There is also a brewery and a silk factory. I was introduced to the governor of the town, and had a good reception from the Japanese officials. They sent me a good horse to go to the hills with, and guides to direct me wherever I wanted to go. They took me to the top of one of the highest points on the mountain, S.E. from the town, and I found plenty of plants new to me, many of which I am happy to say are growing in the Coombe Wood Nursery. I found *Abies yessoensis*, or *ajensis*, a fine Spruce Fir, and in a wild state a far handsomer tree than *Abies polita*. I saw also a magnificent forest of *Abies sachalinensis*, some of which must have been near 200 ft. high and 8 ft. in diameter. *Cephalotaxus* formed a dense undergrowth, covered with bunches of Damson-like fruit. A few examples of *Pinus parviflora* were also met with on the tops of the hills. *Daphniphyllum glaucescens* was an undershrub, growing along with *Rhododendrons*, *Andromedas*, *Vacciniums*, *Acer vitifolium*, *A. japonicum*, *A. rufrinerve*, and another species of *Acer* said to have white flowers. The Japanese

call it the "White-flowered Tree." I also found here a splendid *Carpinus* with bunches of seed 4 in. to 5 in. long, and *Cercidophyllum japonicum*. These were the finest of the forest trees. I ought not to forget the fine *Aralia Maximovii*. The two trees just named are the giants of the Yezo forest.

Climbers.—The most beautiful climber is *Schizophragma hydrangeoides*. This does always best on a living tree with a long branchless trunk, and requires to be old before it produces flowers. I have seen trees perfect masses of large Hydrangea-like blossoms. They can be seen on the mountains several miles off when in bloom. Another fine climber is *Actinidia kolomikta*, with its long trailing branches covered with silvery-white leaves, called by the Japanese "Cat's Medicine," and I find that cats in England are also extremely fond of it. There is another *Actinidia* with edible fruit, which about October I found very good in flavour—something like a large green Gooseberry. All the above-named plants have stood out the last two severe winters at Coombe Wood. I made an interesting discovery on the top of a mountain near Sapporo one day. Rambling amongst the rocks, I was struck by the agreeable scent of Violets, and not finding any, I happened to notice masses of Ferns in the cracks of the rocks, and found them to be *Aspidium fragrans*, an old favourite Fern from North America, and deliciously scented when wet with dew. I continued my rambles about the mountains at Sapporo for ten days, and we had many delicacies in the way of food. We always had plenty of fungi; some from the Birch (*Betula alba*) tasted like mutton; others from Oak trees; the celebrated Mats taken from the Fir trees (we had venison steak always with this); another fungus like masses of miniature deer-horns was excellent in Japanese soup. Vegetables of all kinds were plentiful, and as much trout and salmon as we liked to eat. I was very sorry to leave such good fare, knowing that I should have to "rough it" soon. I made up my mind to go to the Ishicari Mountains, about fifty miles up the Ishicari river, but I was informed by the Japanese that the three American professors were also going there. I made inquiries whereabouts the range could be got at on the south-east coast, and I was told it was 300 miles by road to the place where the hills came down to the sea. It was a long distance, and I could get but little information about the road. On July 12 I left Sapporo and returned to

Chitose and Yubetsu.—On the 13th, after a hard ride from Chitose across the swamp I have already mentioned, we passed on to Yubetsu, and changed our horses at the government station. We pushed on again from here, and at dusk came to a river that was impassable. A sudden rise had taken place during the afternoon, and what was before a fordable stream was now a roaring torrent. I was obliged to sleep on the banks of this river in sight of the hotel or rest house on the other side. In the morning we were able to cross over in the large flat-bottomed ferry boat. After a good meal and fresh horses we pushed on through fine prairies and swamps, now passing along the loose sand of the sea coast, and at other times riding under magnificent forests of Oak. In one place we passed for about ten miles across a fine country covered with Oaks. Every now and then a deer would bound across the track. It put me in mind of some of the splendid old parks in some parts of England. We had many things to make our ride agreeable. There were hundreds of cuckoos with the same note as our English one; nightingales warbling in some of the thickest places; swallows, thrushes, all of which helped to make the scene

home-like. I noticed many of our English butterflies also in abundance—tortoiseshells, sulphurs, common whites, peacocks; and quite common were two of our rarest English butterflies, the Camberwell beauty and the swallowtail. At last we left this glorious place behind, as there was no hotel or place for resting there, and once more struck the sea beach, where we soon had a change of weather; it commenced to rain, and we had a thick fog with it too, and it was with the greatest difficulty that we found our way to

Nekap.—I was very glad when I heard a shout from our guide (an Aino), telling us we had arrived at the quaiho, or government station—the only house. It was a monster building, and I found a jolly host, splendid rooms, and excellent food. After a hot bath and a good rest I commenced to look over my specimens and dry my papers, as I had collected a large number of specimens on my journey from Sapporo. We crossed over a very large river at noon to-day. Two Ainios in a dug-out canoe came across from the village on the opposite side; we placed our saddle and baggage in the middle and sat down in the bottom of the canoe, the Ainios standing up at each end with spade-like paddles. We shot across the stream like an arrow. The river was about 500 yards wide, and like most of the Yezo rivers, was very swift. Our horses were afterwards brought across behind a canoe; they had a good swim. The coast along the south-east is the outlet for most of the rivers from the southern range of mountains in the island. The land is very fertile and rather flat; most of it is of a peaty nature and very deep. I noticed splendid crops of Millet and Maize in some places. It seems a pity such a splendid country is not under cultivation.

The Japanese settlers do not cultivate much of the land. Root crops thrive well, and I have seen their "Dycon" (a kind of long white Radish) 4 ft. long. Every village we passed through was a fishing station, fish oil, salt salmon, and seaweed being the produce of every place. Millions of sea-gulls hovered over the beach where the refuse of the fish oil was drying for manure, and the thousands of Japanese crows were a perfect nuisance. After I was comfortably settled in my room at Nekap, with my thick Japanese dress on, I went to have a look at the interior of the house. The hotel-keeper told me there was good bear and deer shooting to be had, and that the government had a large horse-breeding establishment a few miles in the interior. I therefore made up my mind to visit the place next morning. We rose with the sun, and found splendid horses waiting for us after breakfast, and three or four Ainios on fine animals. They asked me which horse I would have. I picked out a fine bay, half bred English and Japanese, standing quite 15 hands, and about three years old. I soon found this animal took all my time to hold him. I, however, kept my reputation with the Ainios as a horseman. They led me along the valley behind Nekap and over some low hills, when the head Aino stopped and said, "Yama tori," and in a moment they were all off their horses. My boy then told me that they had seen a lot of grouse. I at once loaded my gun, and in a few minutes I had five birds. We proceeded on our journey through tall *Eulalia japonica*, *Polygonum cuspidatum*, and *Lespedeza bicolor*, the three forming an almost impassable mass, till at length we came on a small clearing, and saw some Aino huts; they were square built and with low sloping roofs, *Eulalia* and reeds made into round bundles, and lashed tightly together, forming the walls. The roof was thickly thatched with reeds. The houses were all alike. There was also a miniature house on four posts and a platform of branches, about 8 ft. high, at some distance

from every house. This was the "go-down," as my boy called it, where they keep their food and valuables. I noticed a kind of machine, used for weaving the atzis cloth, and saw also some black mud pottery, just like the ancient pottery of the stone period. There was very little of it though, and I could not buy any. They promised to get me some, but did not, although they brought me a weaving machine and other things. We left the Aino village and went to see the

I had a Japanese for my guide, and as we rode along with our rifles slung on our backs we passed over a narrow ridge only just wide enough for our horses, when somehow my rifle caught in an old tree stump sticking out from a loose heap of rocks, and drew me off my horse, and I was as near as possible falling over the rocks. My rifle-strap held me fast, or I should have fallen. We had some excitement yesterday, too. Our path was along the sea beach for some distance, and in some places the spurs of the hills ended on the beach with huge rocks jutting out into the sea. The tide being full, we had to gallop at full speed round the rocks; we waited till a wave receded, and then took advantage for our rush past. My boy being last was once washed over, horse and all; he luckily escaped with a wetting only. I arrived at

Shamani on July 19, seven-and-half miles from Uragawa. I rode across a sandy plain near here, and it was covered with the pretty *Dracocephalum Ruschyanum*, sent out last year. It was a beautiful sight—one mass of blue as far as one could see. I am now at the foot of the mountains I have so long wished to see, but have to wait till to-morrow before visiting them, as all our guides are on the hills felling timber, but as I sit in my room and look at the magnificent hills in front (across an arm of the sea), my thoughts are fully repaid, for I feel confident something good is growing on those splendid mountains, black with impenetrable Fir forests. These were my thoughts as I sat looking on the field I had been searching for since my arrival in Japan—my working ground for the season.

C. MARIES.

GARDEN DESIGN.

BRIDGES.

We have seen so much of the fantastic in bridge building that we would rather have a garden without a bridge if possible. Freedom from

streamlet. Well, in all such cases what holds good generally holds good here—that simple, strong work should be chosen rather than the flimsy rustic material that we see so often used. Good work lasts and pays best, as the saying goes. There is no place where it is more essential than in any structure that crosses water, and that, if badly made, may lead to accident. We frequently see crumbling, rotten wooden bridges in gardens in an unsafe state, made out of elaborate and so-called rustic work. In some cases they cost more than would suffice to build a strong and lasting little bridge, which, with ordinary care and taste, is far more presentable than any of those so termed ornamental and rustic affairs. In avoiding the fantastic, the flimsy, and the rustic, and taking any good stones easily procurable in the neighbourhood, one may make a bridge which, planted with shrubs or garlanded with climbing plants, may be a beautiful feature in the landscape. It will not give any after trouble, and will not have to be remade, as is so often the case with the rustic bridge. The only wooden bridge we ever saw that was not unsatisfactory was one in Wales, at the foot of Cader Idris, near a small farm; it crossed a swift streamlet, and was made of one piece—an Oak tree which some one had thrown across, making the upper surface level with the axe. It had evidently been there for a few generations, was blanched, but with the seams full of green Mosses and little Ferns. A rail on one side helped the way across. As a rule, if we desire bridges, we must look for them in brick or stone rather than in the materials used for the designedly-picturesque garden bridge. No doubt a wooden bridge may be of well chosen materials and simply designed, but exposure to the weather soon makes it decay, like the bridge in the Regent's Park Botanic Garden, which in other respects was not bad.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

HYACINTHS in pots are now some of our most useful room decorations. We grow six together in a 10-in. pot, always preferring the single kinds and using well proved varieties of low price. Our favourites are Norma, pale pink; Amy, rosy red;



A Thames Bridge!

government horse-breeding establishment. We came to a fold where the Japanese employés were branding the one-year-old colts, and I thought them a very fine lot of animals. We did not see many of the older horses, as most of them were at the other side of the farm. The sides of the hills are railed off, so as to keep the different strains of animals distinct. They have introduced some of the best blood from England and America and crossed them with the Nambu breed of Japanese horses, and with excellent results. They feed on the dwarf Bamboo and Eulalia. The Japanese have sown Clover and Timothy with Rye Grass to improve the pasture. Horses seem to thrive very well on the native herbage, and the *Artemisia* and *Senecio*, that grow in abundance, seem to be the delight of all the horses. I left Nekap on July 16 because we were too far off to work the mountains properly, and I was told by "mine host" at Nekap that the mountains ended in the sea about 60 miles further on, so I pushed on to a town called

Uragawa, 30 miles off the road; it was very uninteresting, and I was rather glad when I was safe in the hotel. There is a splendid valley near Uragawa, running for twenty or thirty miles into the country, with fine streams from the Ishicari Mountains, and later in the season they swarm with salmon. Very little cultivation is carried on. This was one of the central fishing stations and depot for the customs officers. Numbers of junks were anchored near the town, and there appeared to be considerable trade with Hakodati. I found letters waiting for me here from my good friend Captain Blakiston, at Hakodati, with some newspapers, so instead of pushing on further I spent the afternoon under the shade of a boat on the beach, reading my papers, some 3 months old, but the papers were too valuable to miss any of the reading, even the advertisements. The following morning I rode out to the mountains and through a forest; I came upon a ridge of a mountain with an *Abies brachyphylla*, but I found out afterwards it was a distinct kind. I saw several fresh plants, and was well satisfied with my trip. I was very near slipping over a precipice here.



A Devonshire Bridge.

quips and cranks, from ditches and small ponds, and much artificial impedimenta of this kind is what we want. However, in many cases there is real occasion for a bridge, say to span a live

Grand Lilas, pale grey-blue; Charles Dickens, lilac-blue; Alba superbissima and Grandeur à Merville, white; Chateaubriand, yellow. A few pots of the same grown singly come in for mixed

arrangements. Single kinds are of higher decorative value than the double for their more graceful form and greater beauty and variety of colour. A prize double Hyacinth is a solid cylinder of bloom, stiff and ungraceful; the bells are tightly packed together, and individually choked by the extra petals. The flower of a single kind, such as those mentioned, is a graceful cluster, having as many bells as the stalk should carry. The beauty of form of each separate bell may be seen, and the varying colour of the tube with its little stalk and tiny bract; also the tinting of the stalk in harmony with the colour of the flower, the play of light and shade in the recesses of the cluster and the slight droop of the bells, points of interest that are all lost in the double Hyacinth. A deep dish of blue and white china holds delicate white clusters of *Clematis indivisa lobata* with its own handsome leathery leaves. A vase-shaped silver race-cup, standing about 1 ft. high, is arranged with large leaves and rather large-leaved sprays of dark green Ivy and the large Christmas Roses; a trailing piece of the Ivy passes over the side of the cup and across the front, and is kept in place by being passed through the opposite handle. A large Venetian embossed copper holds two pots of *Acanthus latifolius* with groups of Paper-white *Narcissus* shooting up through their dark foliage—a pleasant reminder of South Italian winters.

BEGONIAS FOR FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

THE shrubby types of flowering Begonias are always useful when employed in association with other flowers in a cut state, or a few distinct kinds look exceedingly well on sideboards grouped by themselves along with their own foliage. Of kinds to be had in flower now may be named *B. manicata*, one of the prettiest that can be had for trumpet vases to give a finish and relief to larger varieties of flowers. This sort will also last a long time in flower in the conservatory if the plants have not been brought on in too much heat and moisture; when allowed to expand their spikes in light, airy houses they last much longer. *B. nitida odorata* is also now opening its most forward flowers. This sort is not grown nearly so much as it ought to be, seeing that it produces a continuous crop of flowers for several months in succession. It is, in short, one of the most useful, as well as one of the most elegant, white kinds grown. A little later on this kind will be used here in the conservatory, in which I find it most valuable. It has also, as its name indicates, the advantage of emitting a slight perfume. In a cut state, well developed spikes look well on a fringe of Maiden-hair Fern in a good sized vase, with the addition of other flowers over and above them. *B. sem perforens* is another good winter-flowering kind which is always useful. *B. Saundersi* is likewise a valuable kind; flowering shoots of this variety cut with a good length of stem can be worked effectively into many kinds of arrangements. The tall and straggling growing *B. fuchsoides* is very effective in a cut state. *B. asotensis* also yields useful spikes. The foliage of some larger growing kind will be valuable to use along with the three last named varieties; I find that of *B. metallica* useful in many ways. The new variety shown of late under the name of *B. sootrana* promises to be an invaluable addition to the winter flowering section of these popular plants. All the kinds just named will be found now to be of service in a cut state. Others there are that will do a good turn during the summer in conjunction with the tuberous-rooted varieties, and other sorts are valuable late in autumn, especially *B. insignis*. In gathering flowers of Begonias cut them in each case with as long a stem as can well be had, and also give them as much water as can be safely used. This will help to keep them fresh somewhat longer than would otherwise be the case.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Arundo.—There is probably no other kind of plant that at so little cost produces equally pleas-

ing effects in ornamental gardening as the *Arundo*, particularly for waterside planting, or in moist situations where most other kinds of plants would fail to thrive satisfactorily. In such positions these Reed-like Grasses are most at home, and being perfectly hardy, they virtually need no attention when once planted. *Arundo Donax* and *Donax versicolor*, in deep soil, grow to a height of 5 ft., the stems being clothed throughout with beautifully marked foliage of about 2½ in. in width. The two varieties planted alternately in groups near the margin of a lake or stream produce as fine an effect as any of the most noted sub-tropical plants. They also look well singly on turf, and as central plants in beds of *Solanums* and other plants possessing large foliage. They are propagated by division, an operation which may be performed now. *Arundo conspicua* takes more of the form of the Pampas Grass, having the same graceful habit of growth, and it flowers quite as freely as the Pampas, but is far more elegant. This also is essentially a waterside plant, and one of the very best for grouping in low, damp positions. It may be propagated by division, but the check thus produced takes a long time to repair, and therefore we prefer to raise plants of it from seeds; the latter may be sown at any time between this and midsummer.

Summer bedding arrangements.—The plants necessary for this purpose may now be propagated. Happily the increased and still growing interest now taken in hardy flowers does not render such matters so imperative as was the case a few years ago, simply because fewer tender plants are required, and these will gradually grow fewer still, as it is seen that equally pleasing, if less showy, arrangements can be made by means of hardy plants. I, however, by no means predict the entire abandonment of tender summer bedders, but only such a reduction in their numbers that space for wintering and spring propagation shall not interfere with other and more important duties. At this stage of the matter we have already, indeed, arrived, for in computing the numbers and kinds of plants needed, tender second-rate sorts are rejected whenever it is possible to do so without destroying the harmony of the general arrangement. Another way of reducing the number of tender plants is to plant them thinly in a given arrangement, and then clothe the ground beneath with a suitable hardy carpeting plant. One of the most admired beds here last season was one very thinly planted with variegated *Pelargonium* May Queen, the undergrowth being *Herniaria glabra*, bright green, which set off to the best advantage the white foliage and rose pink blossoms of the *Pelargonium*—altogether an infinitely better arrangement than if there had been 200 *Pelargoniums* in a mass, instead of which there were not more than a score. I mention this arrangement as it shows what may be done in the direction of subduing the never-ending monotony of masses of colour so prevalent in some gardens. The sorts and numbers of plants required being decided, the next matter must be their

Propagation. and with the hardy section of dwarf carpeting plants that is a small matter, as they are all so readily increased by division, and only need dibbling in on any warm border, or, if the beds are now vacant, they may be at once planted in their allotted spaces. *Antennarias*, *Cerastiums*, *Sedums*, dwarf *Veronicas*, *Ajugas*, *Herniarias*, and all plants of the same thicket-like character of growth must be fresh planted every season, for if left a second year, their dense growth engenders mildew and decay, and the whole groundwork becomes patchy and sickly, faults which it retains throughout the season. The half-hardy and tender section of plants also used for groundwork may, with a moderate amount of warmth, be increased almost as expeditiously as the foregoing. *Golden Feather Pyrethrum* may be grown from seed sown in pans, and pricked off in cold frames as soon as the plants can be handled. *Mesembryanthemum cordifolium* variegatum may be increased in the same way, and also by cuttings, which strike freely in pans or boxes set on bricks over hot-water pipes, where a

temperature of about 60° is maintained. *Gnaphalium lanatum* may be raised from cuttings struck in warmth and then transplanted into pots; *Alternantheras* by means of cuttings struck on hotbeds of leaves and litter, on which frames are placed containing about 4 in. of light soil (peat and loam) made firm. Cuttings inserted about 2 in. apart quickly root, and there they may remain till needed for planting in the beds, air of course being given to induce a sturdy growth whenever the weather admits of it. These plants are so rapidly increased, that it is not necessary to put in cuttings till March has become well advanced; but the stock plants should now be given abundant heat that cuttings may be forthcoming when wanted. *Iresines* and *Coleus* strike anywhere if afforded warmth; the only remark to make about them is that they should be used as sparingly as possible. *Lobelias* should be raised from cuttings only; seedlings are usually so disappointing, being both irregular in growth and weedy as to variety, that one wonders they are ever used at all. We strike them in a brisk heat, and transplant to frames as soon as they are well rooted; pots or boxes are never used. The herbaceous section of *Lobelias* are most satisfactory when increased by division, though they come fairly well from seed. *Ageratums*, *Fuchsias*, *Gazanias*, *Lantanas*, *Königia variegata*, *Petunias*, and *Verbenas* quickly make root in a bottom-heat of 70°, and will afterwards thrive vigorously in an intermediate temperature. They should all be allowed plenty of space; a well-developed bushy plant is equal to half-a-dozen lanky ones. *Calceolarias* in cold frames should be thinned out by transplanting them to other frames, or in the south of the kingdom they will now do at the foot of south wall if protected in frosty weather. *Violas* and *Pansies* should be treated similarly, or if needs be, strong plants of these may now be planted permanently.

INDOOR PLANTS.

T. BAINES, SOUTHCOTE.

Hard-wooded Heaths.—Of all greenhouse plants in cultivation, Heaths have the greatest dislike to fire-heat if used for any length of time, or in quantity more than sufficient to keep out frost; and in severe winters, when there is a long continuance of hard weather, great care should be taken that the temperature is never allowed to get too high, or the plants are sure to start into growth, which should never be excited except by the natural return of sun-heat. On this account, if, as we generally experience after an unusually mild winter, such as the present, we have a continuance of sharp nights late in spring, no fire-heat must be used than will render the house safe from frost. It is no use attempting to cultivate Heaths except they are well and regularly attended to. Their greatest enemy is mildew, from the attacks of which they are never safe. It is usually more troublesome in damp, mild winters, when the atmosphere of the houses, as a matter of course, is more humid than when there is a necessity for more use of fire-heat. The plants should be looked over closely every week, and the moment the least trace of the parasite is apparent such as are affected ought to be dusted with sulphur. The importance of prompt attention in this matter cannot be too much urged upon new hands in the cultivation of these and all other hard-wooded plants that are in any way subject to mildew, for it speedily destroys the vitality of the leaves so much as to cause them to fall off in a few weeks, leaving the shoots bare, unsightly, and impossible to reclothe with foliage. All the Heath family, but more particularly the hard-wooded kinds, are proverbially impatient of any extreme in moisture, either too much or too little. In winter it is necessary to keep the soil comparatively dry.

Epacris.—The early flowering kinds should immediately they have done blooming be cut well back, reducing the last summer's growth to one-third its length. This is the more necessary with the erect habited sorts, otherwise they get a such a weak, straggling condition as to occupy

twice the room they should, and be equally objectionable in appearance. Although requiring to be treated similarly to Heaths in the matter of being drier at the roots now than in the growing season, they will bear keeping warmer in the winter; and if after the shoots have been cut in they are put for a few weeks in a night temperature of from 40° to 45° with plenty of light and some air when the weather is fit in the day-time, they will be benefited by it. Treated in this way they will make growth earlier so as to admit of their being exposed to the open air sooner in the summer, with a disposition to bloom correspondingly earlier in the ensuing autumn. The bushy growing varieties, such as *E. miniata*, *E. Eclipse*, and *E. grandiflora*, are best adapted for late flowering; and where there is means for keeping them back by the use of a cool north house, a succession in flower may be kept up until midsummer. Their long sprays of bloom, which stand well in water, are most useful for cutting.

Azaleas and Camellias.—Where there is the convenience of a house with a northern aspect, so as to be little under the influence of the sun, it gives advantages in keeping up a display of flowers in conservatories and for other purposes late in the spring, such as is not possible where all the stock has to be treated in houses that are exposed to the full force of the sun. The latter soon after this time begins to have power enough for some hours in the day to run up the temperature to an extent that moves the plants rapidly, even if all the air is given that they will bear; for it may not be out of place to note that even when there is no growth in motion, it is not well to subject plants to a full current of air through this and the next two months. If a selection of early and late blooming kinds of Camellias are grown, and they are treated in a manner to have their growth matured at different times, there is no difficulty in having them in flower from the beginning of September up to the end of May; but as a natural consequence flowers, that come in as late as the latter time do not last near so long as those produced in the winter. There is little doubt that the growth and flowering of Camellias is less interfered with when the potting is done about the time the season's growth is completed and the bloom-buds just beginning to form, as when it is carried out then the unavoidable breakage of the roots, which are very brittle, has less adverse influence on them than at any other season. But where there are plants that have been kept so long in small pots that their strength is thereby interfered with, it may be advisable to pot them before the growth begins. Where this is the case, the work should be done before the shoot-buds show signs of swelling, otherwise the season's growth is sure to be affected, even if no more disturbance of the roots takes place than is necessary to remove the drainage. On this account it will be advisable not to wait until the blooming is over, for the loss of a few flowers now will in most cases be a less evil than failure of the crop of bloom another season.

Cyclamens.—The flowers of these are well adapted for cutting, being both pretty and lasting well, but if too many are used in this way the plants suffer. If the flowers are severed from them in the usual manner by cutting; the stumps of their succulent stalks remaining generally decay down to the base and rot the young blooms that are springing up later; consequently it is in some respects better in gathering the flowers to pull the stalks out entirely, but if this is carried too far, so as to remove nearly all the flowers as they arrive at maturity, it seriously injures the bulbs; therefore, where the intention is to keep the bulbs or more correctly speaking, corms, there should only be a moderate quantity gathered. It is well to raise some from seed each year, as though not capable of producing so many blooms the first year as larger plants will, the first season of their flowering is often the most satisfactory. See that the young stock raised from seed last summer are well attended to. If they have been wintered in pans they should have been accommodated with a temperature of about 50° in the night, and stood

close to the glass, or the leaves are apt to become drawn and weakly. If treated in the matter of warmth as ordinary greenhouse plants, they make little progress during the winter, and take two years to bring them up to a size that renders them of much use for blooming. The temperature of an intermediate house appears to suit them best until they have attained a strong flowering state. Keep a close look-out for aphides, which conceal themselves on the undersides of the leaves of these plants much more effectually than on most things.

Pelargoniums.—Any plants of the large flowering varieties that bloomed late, and were not cut down until after the usual time, and are not yet put into their blooming pots, should be moved into them at once. If at the same time the points of the shoots are pinched out the flowering will be thereby retarded, so that they will come in after the earliest are over, at which time they will be found useful. Examples of these and many other plants that are kept for late blooming soon acquire a habit of thus coming in late, consequent upon the treatment they receive, and may be had in after the bulk of the stock is over with little trouble in retarding.

PROPAGATING.

Tuberous Begonias, where the stock is to be increased, should now be potted in a good light soil, say equal parts of loam and leaf-mould, and plunged in a bottom-heat of from 60° to 70°, when they will at once start into growth, and when of sufficient length the young shoots may be taken as cuttings. In doing this it is not necessary to sever them at the joint; they should be cut immediately above one, thus leaving a base from which other shoots will push, and as there is sufficient length of stem from one joint to the other, it will not be necessary to remove any leaves for the purpose of insertion. Put the cuttings singly in 2½-in. pots if large, and three or four around a 4-in. pot if smaller, using the soil just recommended, except that it must be sifted and a fair proportion of sand mixed with it. Cuttings thus treated and kept moderately close will soon root, but from their succulent nature they are liable to damp if kept too moist. This is the course pursued in the case of individual varieties, but it is not so much practised as formerly, owing to the fact that seeds saved from good flowers are readily obtainable, and if sown now produce good flowering plants the first season. Being very minute, they require care in sowing, and more especially in watering. Whether sown in pots or pans, both should be quite clean and well drained; then fill to within ½ in. of the top with light, open soil, consisting of three parts leaf-mould, one of loam, and a liberal admixture of sand, the whole being sifted through a sieve with ½-in. meshes and pressed down moderately firm. An even surface being now obtained, give the pots a good watering through a fine rose sufficient to saturate the whole, and then while still wet sprinkle the seeds thinly over the surface, to which from its moist condition they will at once adhere. No covering is necessary, but place a pane of glass over the pot, when the seeds will readily germinate; then the glass must be removed. Thus treated, they come up more satisfactorily than when covered with soil.

Fuchsias as annuals.—A good deal of attention has been directed lately towards treating Fuchsias as annuals, i.e., raising them from seeds in the spring and flowering them during the ensuing summer. Last year I obtained a fine lot of flowering plants in this way. For this purpose the seeds should be sown at once, placed in gentle heat, and as soon as the young plants are large enough they should be pricked off, for they are very liable to damp off just at the surface of the soil.

Deutzias and Azaleas.—Where Deutzias are forced there will be a fine crop of young shoots, which, if taken off, strike within a fortnight, and if then potted in small pots will make good little plants by April, when they may be planted out.

The plants must not be removed into a cooler place before the cuttings are taken, or the check they then receive will very much retard the rooting process. Young growths of Azaleas made in heat in this way strike readily if put in pots of sandy peat and kept close till rooted, but in their case a sharp look-out must be kept for their great enemy, thrips, which in the close atmosphere of the propagating house increase rapidly.

Soft-wooded plants.—The propagation of the various soft-wooded subjects that have been taken into heat to hasten their growth must now be pushed on as rapidly as possible, but in taking the cuttings always leave one joint of the young growth, as it pushes forth other shoots much more readily than the old wood. Where Bouvardias are propagated from the roots the present is a good time to do so, but the best plan is after the plants have done flowering to give them a rest by keeping them somewhat dry, and in as cool a temperature as possible consistent with health; then about the middle of January introduce them into heat, and as they then start at once into growth take off the young shoots and treat them as one would Fuchsias and similar plants, when they will strike readily. T.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—During the last week or ten days the weather has been very unfavourable for Orchids, owing to the prevalence of thick fogs. Nevertheless, we have a good spike of *Cattleya Leopoldi* in this house—a showy species much superior to *C. guttata*, and owing to its distinct character well worth growing. Plants of *C. gigas*, placed in a cooler house to rest, should be moved into the cool end of this house, and placed near the glass as soon as they have started into growth. This fine *Cattleya* does not flower freely unless it has a good period of rest. *Oncidium Lanceanum* is a very beautiful species, and when its cultural requirements are understood, not difficult to manage. We grow it in a teak basket suspended near the roof in winter, but in summer the sunlight is too much for it in that position. It is now starting into growth, and must not suffer from lack of moisture. *O. phymatolobum*, a difficult species to flower, taken out of the pot, placed in a teak basket and suspended near the roof, is now throwing up a spike with the young growth. The character of these two, as well as that of some other allied species is to throw out a mass of young roots all at once; and if these get injured in any way, the health of the plants suffers permanently. The roots may get dried up by being exposed to an over dry atmosphere and a high temperature, or they may also suffer from the potting material being packed too closely round them. I have not found woodlice to injure such roots, but a large slug will entirely destroy the produce of a pseudo-bulb in one night, and the plants must be carefully watched in case this should happen. *Oncidium ampliatum* has thrown up spikes a few inches in length, and these are specially attractive to slugs. We have to closely watch these spikes in their earliest stages at night, or we would never see the flowers of this species at all. Keep the night temperature about 65°, but it may fall a few degrees on cold nights.

Cattleya house.—The first blooms of *Cologyne cristata* are now opening, and also those on spikes of *Odontoglossum pulchellum*. These two Orchids will continue to supply choice cut flowers for these next two months, or longer if there is a sufficient number of plants. The commonest form of *C. cristata* is perhaps the best, although the variety with a pale yellow or lemon blotch on the lip should be grown to prolong the bloom. There is also the pure white variety, likewise a very desirable form. These now require considerable supplies of water, otherwise the bulbs have a tendency to shrivel. One plant turned out the other day, and divided into three, is now flowering as freely, and looks as well as the others. We also potted *C. barbata*; this species requires

considerable supplies of water, and not too much pot room. I fancy that *C. cristata* would in some cases be improved if it received more water than it does during the growing season. The best bulbs I ever saw were produced in a Cattleya house temperature, and all through the growing season they were kept quite wet, the Sphagnum in which they were growing being beautifully green and growing up amongst the bulbs. *Odontoglossum Phalaenopsis* is now making fine strong growths, and flower-spikes are also showing themselves. Our whole stock of this species has been turned out of the pots; nearly the whole of the old potting material has been removed, and the plants repotted. *O. vexillarium* and *O. Roezli* have also been looked over; in some cases the plants have been repotted, but in others they have merely been surface-dressed. When a portion only of the plants are repotted, a label showing the date of potting should be attached to each, as a guide for future treatment. As all these *Odontoglossums* are so liable to the attacks of thrips, they should be dipped once in about every four weeks in a mixture of soft soapy water to which some tobacco water had been added. About an hour after dipping, the leaves should be rubbed over with a soft sponge dipped in clean water. *Cymbidium eburneum*, now so cheap that it should be in every collection, is showing well for flower. Our plan is to report such plants of it as do not show at this season, as on examining the roots it will be found that they are just starting to grow. Use a compost consisting of about two-thirds good turfy loam to one of turfy peat. Plants showing for flower must have a good supply of water.

Cool houses.—If repotting of all that requires that attention has not been done, let no further delay occur in the matter. Many do not report until later than this, but the roots of all those potted here during the last few weeks were starting into growth. We used to pot a large proportion of our Orchids in the summer months after the May and June exhibitions were over, but I believe it to be better to do so at this season. We have tried some plants of *Masdevallia tovarensis* in the Cattleya house and a portion in the cool house, and so far there does not seem to be any difference between them; but the temperature in the cool house is not allowed to fall so low as it has hitherto done. We have had it as low as 35° on several occasions, but when it can be kept at 45° or 50° without much extra trouble, it may be better to keep it, especially at this time of the year, up to the highest figure. Many species of *Odontoglossum* do not open kindly in the lower temperature, and owing to condensation of moisture on the flowers they are soon rendered unsightly. Amongst *Masdevallias* there are some that certainly succeed best during winter in an intermediate house, and of these *M. Wagneriana* is one. It makes a pretty little tuft, and should be grown in small pans suspended near the glass in a shady part of the house. The new, or at least rare, *M. rosea* is said to like the coolest part of the cool house, and as it is now probably in the hands of several cultivators, we may hope to see it in flower during the current season. The pretty, sweet-scented *Oncidium cheiroporum*, although it does well in the cool house for the greater part of the year, is now starting into growth, and should be repotted. I found on potting ours that the small fibrous roots were in very active growth. *Epidendrum vitellinum* and the *majus* variety were in the cool house until the middle of January; they were then taken out, and some of them were divided and repotted in much smaller pots, and placed in the intermediate house. If it is intended to exhibit the large flowering variety at the early summer shows, it will not be in flower unless it is placed in a much warmer house.

THE FRUIT GARDEN.

W. COLEMAN, EASTON CASTLE.

Strawberries in pots.—Until we have a change to brighter weather great patience must be practised in the management of plants now

coming forward, otherwise the tedious labour of the past year will end in failure. If they occupy shelves near the glass keep the latter clean, and avoid overcrowding during their progress to the flowering stage. When in flower give more air, or remove them to a light, airy house where they can be regularly attended to with water and sufficient atmospheric moisture to prevent the blossoms from suffering under bright sunshine. Give gentle fire-heat to admit of a free circulation of air by night and day, thin out weak flowers, and fertilise with a camel's-hair pencil when the pollen becomes light and plentiful. Strawberries under artificial treatment being so impatient of a high temperature until after the fruit is set, a minimum of 45°, with a rise of 10° by day, will be quite sufficient, but when fairly set and removed to a Pine stove to swell off, there will be little danger of overdoing them with heat, moisture, and stimulating food. They must not, however, be allowed to remain in this position if flavour is to be the test of skill in forcing. When fully swelled and partially coloured they should be removed to a warm, airy house, where exposure to light and the gradual withholding of water from the roots will greatly improve the quality of the fruit. As days increase in length and brightness, successional crops may be brought on faster by closing for a few hours, with sun heat, and moisture from the syringe, but air must be again admitted at night, when the temperature may range from 45° to 50° when external conditions are favourable. Where light, shallow pits are at command it is a good plan to use them as feeders to the forcing pit by placing 1 ft. or 2 ft. of fermenting leaves over the bottom and keeping them filled up with plants from the general stock. The leaves should be made very firm to preserve the warmth, and lightly covered with coal ashes to keep back worms and to raise the crowns to within a few inches of the glass.

Cucumbers.—It is difficult to conceive or wish for a finer winter for Cucumbers than this has been, and if the present promise of bright sunny days continues, good fruit through the months of February and March should be plentiful. Growers who work on for this time of scarcity, by maintaining low, steady heat consistent with safety, and crop lightly, will now have clean, healthy plants capable of giving an abundance of fine fruit, but unless they are to give way early in the spring to make room for Melons, overcropping must be avoided, as checks of all kinds, particularly from overloading, make many Cucumber houses barren at a time when good fruit is in daily demand. As the days increase in length a little more heat may be given them if it can be secured from solar influence, but no great change need be made through the night, as hard firing brings many ills. To avoid these, dry covering of some kind should be placed over the lights every night, and the bottom-heat from fermenting material should not be allowed to fall below 80° at the base of the pots. Another important operation is frequent dressing, to prevent the foliage and Vines from becoming bleached and drawn by crowding, and so leave them an easy prey to the first enemy, be it insect or mildew, which may attack them. Keep the evaporating pans now regularly filled with stimulating liquid, top-dress the roots with fresh compost, and bathe the foliage and stems with warm soft water whenever the house can be run up to 80° or more with sun-heat. Young plants in small pots intended for training over a trellis in the Cucumber house may be shifted on from time to time if the bed is not ready, but one shift from the seed pot to the hill is always best, and it is better to throw plants away and fall back upon later sowings than to trust to them when they become potbound and often infested with spider before the points reach the trellis. When young plants intended for pits and frames have made two rough leaves, pinch out the points and keep them close to the glass until the hills are ready for them. If the manure has been well worked and placed in the pits, make it very firm and level on the surface; lay sods of turf, Grass side downwards, across the centre to prevent the roots from

striking into the manure, and upon these form a long narrow ridge or small cones of light rich soil. Introduce a bottom-heat thermometer, and when a steady heat of 80° to 85° has been secured, cover the remainder of the bed with sods and plant out in the usual way.

Hardy fruit.—With the exception of one night's rain, the weather of the past month has been all that could be desired for pulling up arrears of planting or other work where the disturbance of the roots of fruit trees comes within the range of the operation. The same favourable conditions having also helped forward pruning, training, and winter-dressing, thrifty hands should now be turned to the preparation of protecting materials of some kind, as we can hardly expect a mild winter like the past to pass away without a few sharp spring frosts, and it not unfrequently happens that one particularly treacherous forepart of the night suddenly changes to a sharp frost the following morning and settles the cream of the fruit crop for the season. With this dearly-bought experience in view, all dwellers in low, damp situations will do well to be ever on the watch, and prepared to cover up on the instant, if they do not make a point of seeing everything safe before they retire for the night. So much having been written upon the protection of the blossoms of fruit trees, it may be well to guard young beginners against the abuse of materials placed within their reach, as excessive covering very often forces a weak, premature growth which is killed, whilst its judicious application retards, exposes, and protects in time of need. For walls the first requirement is a broad coping of glass, if possible 2 ft. wide and portable, as everything should be cleared away when danger of spring frosts is over. In front of the trees several thicknesses of fishing-net may be suspended permanently. Canvas, Frigi-domo, or an excellent and less expensive material called grey baize, sent out by Messrs. Veitch, of Chelsea, may be used as curtains or blinds, but they must be drawn up or aside every day, otherwise the danger to which I have alluded will soon be present in the form of weak, blanched flowers, which cannot be expected to set and swell into luscious fruit. Apriots this year well furnished with flower-buds will be the first to require attention. These may be coped and poled, but the nets must not be suspended until the blossoms begin to open. Next will come the early Peaches; but as these are still drawn away from the walls, and nailing in will be deferred until a late period, arrangements must be made for rapid dispatch when the proper time does arrive. Work in orchards referred to in my last paper may still be carried on as opportunity serves, and stocks may be partially cut back preliminary to grafting in the spring. A mild season being favourable to early enlargement of fruit buds, small birds are generally troublesome; hence the importance of dusting with soot and lime when wet, or syringing with the same in solution after the trees are pruned. As many kinds of Strawberry are already throwing up their crowns, any deferred cleaning and top-dressing must be proportionately early, otherwise the flowers will suffer. Many people have an idea that spit manure is the best top-dressing for Strawberries, but in old gardens already too full of animal and vegetable matter a good dressing of soot, followed by 2 in. of fresh loam, will produce better crops of finer flavoured fruit. If not already done, autumn-bearing Raspberries must now be cut over quite close to the ground. Belle de Fontenay is a fine, large fruited kind and well worthy of general cultivation.

MARKET FRUIT GARDENS.

J. GROOM, LINTON PARK.

The season being favourable, the pruning of bush fruits is well advanced; as a rule such fruits as Gooseberries and Currants (Red and Black) are cut in severely, even more so than in private gardens; for in the case of Gooseberries, except when the fruit is gathered green, it pays better to have a fair crop of large fruit than a heavier crop of small, under-sized berries, and in

order to have size, only the strongest young wood is left. Red Currants, too, are spurred in very closely; after pruning the cuttings are all raked up to the end of the rows and thrown into heaps to burn. A good coating of manure is then forked in lightly round the roots and the soil between the rows is dug up as roughly as possible. As it gets trodden down hard during the gathering season, it is much benefited by exposure, and when forked or prong-hoed down in spring to get out coarse rooted weeds, such as Docks, Dandelions, Couch Grass, or Bindweed, a fine crumbling surface is the result. Cultivating ground in this condition is not only more cheaply performed, but a good layer of finely powdered soil is looked upon as the best antidote against drought, and if the drying winds of spring penetrate to the surface roots the crop is proportionally reduced in size.

Raspberries are being extensively planted, in some cases as intermediate crops between dwarf Apple or Plum trees, but more generally by themselves. They are planted in rows about 4 ft. apart, and in patches of three or four young canes, 2 ft. asunder in the row. Small canes with good roots are preferred to even good canes with few roots, as the first year's crop is of little value. After planting the canes are cut down about half their length, and the first and second year an intermediate crop is planted between the rows. They are never staked or supported in any way, but the canes are cut down to between 2 ft. and 3 ft. from the ground. They are, therefore, stiff enough to stand alone. Some sorts make stronger canes than others, notably Prince of Wales, a very fine Raspberry, but some others, such as Fastolf and Carter's Prolific, are largely grown for market. After the second year's growth they are at their best, and with rich dressings of manure, so as to rest large fruits, constitute one of the most profitable crops grown. When gathered, they are put into tubs, and consigned at once to the jam manufactories, as being very perishable they quickly deteriorate if left to stand any length of time. At present, however, the supply is not equal to the demand. Although the Raspberry delights in a rich, rather moist soil, it is grown to great perfection in soils by no means naturally rich.

Fruit trees intended for grafting should now be beheaded just above where it is intended to re-graft. If left until late in the season a good deal of the strength of the tree is wasted. Shoots about the size of a man's wrist are the best for grafting on. All those done last season should now have their stems cleared of lateral spray left on at the time for promoting root action, and the leading shoots from the graft should be topped about one-third of their length and otherwise treated as young trees forming a head. A supply of grafts should be at once secured and laid in by the heels in trenches in a cool shaded position; do not tie them in bundles, as the centre ones are liable to get dry and shrivelled, but lay in each variety separately with its name or number at the end of the row. The best shoots for grafts are those of medium strength; they are generally better ripened than the largest ones, and weakly shoots have not stamina enough to form a healthy shoot. Old established trees where Moss growth should now be dusted with freshly slaked lime worked well in among the twigs, as, in addition to its beneficial effect in cleaning the wood, it forms a valuable manure when washed off into the soil. See that all freshly planted trees are securely staked, and the stems protected from chafing or being barked by sheep or game. A coating of Birch or a surrounding of rabbit-proof netting makes a good protection, and some case the stems in rags or sacking and smear them with tar or other noxious compounds.

Apples of home growth are now realising fair prices; good dessert kinds, such as Cockle Pippins, Reinettes, and Golden Pippins are worth from 4s. to 6s. per sieve; kitchen kinds fetch from 3s. 6d. to 5s., and with such a crop as that of last year home growers can successfully cope with foreign competition, at least in Apples, for some time to come.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

Just now is a very good time to plant Shallots, than which few crops pay better or command a readier sale. The land which we use for this crop is not rich, but should be well worked and made as fine as a heap of sifted ashes. We draw the drills for them about 1½ in. deep, fill them up to the level of the ground with burnt refuse, and in this we plant the bulbs 1 ft. apart. Shallots often become mildewed, occasioned by being too deeply embedded in the soil; hence the reason of planting so shallow, that all the bulbs may be above the soil when matured. A most useful spring crop may be had by planting small Onions just now, to pull and use in a green state. These Onions planted on the edges of borders look trim and smart. Small sowings of Celery may now be made in boxes for very early use, but the main crop I never sow until the second week in March. Of early Cauliflower (Dean's Snowball is the best here), a boxful should be sown at once. The same may be said of Lettuces of the true Cos variety, which stands at the head of its class. We are busy planting Potatoes in frames, sowing Radishes, early Carrots; and here I must remark if nice, clean grown Carrots are wished for, mix plenty of sand in the compost in which they are grown, and you will not be disappointed. Cover up more Seakale and Rhubarb, and keep up a good supply of Asparagus and French Beans. Our young plants of Tomatoes are now in single pots (3-in. ones). We intend planting a house with them next week. The winter plants are now done; therefore directly we can get the house thoroughly cleaned we shall plant the spring batch. Our winter Cucumbers are still bearing, and doing a good service. Our young plants for pits are now potted, and will be ready quite as soon as they are wanted. As to salads, the large variety of Chicory called Witloof is just now most useful. We place a dozen roots in a large flower-pot, and blanch them in the Mushroom house. Keep up successional sowings of Mustard and Cress, and when well up remove them into cool houses.

CARPETS FOR FERNS.

MR. EDWIN JACKSON might have added to his list (p. 54) of plants suitable for growing beneath Ferns out of doors a considerable number of pretty dwarf herbaceous plants, which, in addition to "enhancing the beauty of the fernery by their foliage," would contribute a display of flowers under such conditions. Still, Mr. Jackson's note distinctly points out the advantage of such happy combinations, and the choice of plants suitable for such purposes may be left to the taste and judgment of the cultivator. Among these the Ivy, St. John's Wort, Vincas, Berberis, &c., have proved very satisfactory, and to this list might be added many humbler, yet equally useful, subjects for planting in shady places. My object now, however, is to speak of plants suitable for covering unsightly surfaces in plant stoves.

I have recently seen some very good instances of what may be done to improve the appearance of a collection of plants by employing shade-loving subjects for hiding bare places on the stages or beds. One of the prettiest pictures I have seen was in a small fernery, the stages of which were covered with fine cinders, on which stood an ordinary collection of Ferns in pots. The cinders, and in most cases the pots also, were completely hidden by a thick mass of the two Fittonias, *F. argyrea* and *F. Pearcei*, whose rich variegation contrasted very prettily with the soft green of the Ferns. The moisture in the cinders was all the Fittonias required in the way of nourishment. Another tasteful carpet was made by a mixture of the white Fittonia and Selaginella growing on a large bed in a stove where all the plants were planted out.

Mr. Jackson's experience of the Selaginella causes him to accuse it of dying suddenly if exposed to the sun. Out of doors the sun may kill it, but under glass neither sunshine nor shade seem to make any difference with this little ram-

bler, except that the more summer's sun it gets the better it will stand the winter. The pretty golden variety makes a worthy companion to this plant. *Cyrtodeira metallica* and *C. fulgida* thrive well in shaded corners or on beds beneath taller plants. Their prettily marked foliage and crimson-scarlet flowers render them capable of being used with charming results, especially when growing along with the Selaginella. These also make very pretty basket plants, and for covering the surface of the soil in large pots, if mixed with the Artillery Plant (*Pilea microphylla*), they have but few equals, as was well exemplified in the Victoria Lily house at Kew last summer. Pellionia Daveauana has proved a useful acquisition in this respect; some plants which were placed in a very shady place grew amazingly, and in a short time covered quite two square yards of the bed on which they were growing. In such a place the colour of the leaves was much more distinct, and the leaves were at least as large again as those which were more exposed to light. Mikania pulverulenta grows well in shade. It is a pretty trailer, and its habit is so suited to growing in such places as those just mentioned, that it cannot fail to please. The foliage is of a deep bronzy hue.

Many other plants might be named, such, for instance, as the trailing Tradescantia, some of the *Peperomias*, *Dichroandra*, *Eranthemum igneum*, and so forth. The little noisiness such plants require makes no difference to their larger brethren beneath whose shade they grow; in fact, they may really be benefited by having about their feet these smaller fry, which prevent excessive evaporation.

B.

— Mr. Jackson's interesting remarks in reference to carpets for Ferns (p. 53), although directly applying only to outdoor ferneries, are equally applicable to those under glass, in which the Ferns not only look better, but are really benefited by having a carpet of some kind over their roots. For this purpose, nothing is more beautiful than the well-known Selaginella (*denticulata*) Kraussiana, which in a cool, moist house will last for years without being replanted, while in a hot stove temperature its growth is much more rapid, but under such conditions it soon dies off underneath, and requires frequent replanting to keep it healthy and verdant. I have also found some of our hardy wood Mosses to make lovely carpets, and at this time of the year, when ferneries are being given their annual top-dressing, a fresh layer of wood Moss should be put on, so as to entirely cover the surface of the soil. Some of our clumps of this Moss have indeed kept growing for these last three years, and very beautiful they look—more like filmy Ferns than common natives of our woods. Flakes of this when removed with ½ in. of leaf-soil and loam adhering to their roots make excellent top-dressings for large clumps of Woodwardias and similar Ferns elevated on buildings; by fastening them on with stout pegs they soon become firmly fixed, when the moisture with which the structure is supplied keeps both Ferns and Mosses in perfect health.—JAMES GROOM, Linton.

Names of plants.—H. T. W. (*Bromwich*).—*Odonto-*glossum Lindleyanum.—R. W. (*Salisbury*).—Apparently *Pteris scaberula*, but we cannot be certain without seeing a frond with spores (seeds) at the back.—E. W. are making enquiries.—F. Silvester.—*Zygopetalum Mackayi*, *Dendrobium speciosum* (white).—J. Pratt.—*Trichopilia suavis superba*.—W. B.—The flower you sent was received in a decayed state, almost beyond recognition. It appears to be a Cattleya Trianae. To name correctly, we should like to have a fresher flower.—Miss P. (*Perth*).—1, *Aspidium falcatum* carotoidum. 2, *A. angulare* var. 3, *A. falcatum*.—J. Cheat & Sons.—*Daphne Acrocarum*, as far as can be made out from the material sent.

COMMUNICATIONS RECEIVED.

C. B. F. S. D.—F. M. & Co., J. C. C. G. W.—B. C. R.—W. T.—W. W.—T. K. H.—P. S. W.—C. W. D.—F. J. E.—W. J.—A. H.—G. J.—G. N.—R. B. S.—R. C. J.—E. D.—K. & Co.—A. D.—W. T.—J. C.—J. G.—T. D. H.—B. M.—E. O.—M. A.—P. T.—A. W.—R. B. S., Dublin 2.—S. B.—B. M. B.—G. L.—A. T. B.—J. H.—L. Cambrian.—F. W. M.—J. F.—W. P.—F. R. H.—Economy.—J. S. T.—R. W.—J. B. & Sons.—J. F.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ENGLISH PLANT NAMES.

In advocating the employment of English names for plants grown either for use or ornament by English-speaking people a word of explanation may be necessary. They are firstly and mainly intended for those who have neither time nor inclination to learn Latin names and their meanings. Botanists, nurserymen, and gardeners must perforce use Latin or Greek names, but altogether these form such a small class compared with the millions who must needs in some way think and express their thoughts about plants and flowers, that for the masses English names, as short and as sweet in sound and as definite as possible, are an absolute necessity. No one supposes that they can in any way supersede Latin names as used by botanists or by people who care to learn such Latin names. They are simply an aid of the most important kind to those who can never devote time to learning Latin names, and yet who wish to think and speak about common flowers in a common-sense way.

Native names, I may mention, have long been used by all nations, and even Britons found such names for food plants and trees found long before Latin ones were known in this country. Native names, too, have always been used for native animals and minerals, and while fully recognising the utility of Latin and Greek names all over the scientific world, there yet remains the greater world unscientific, which will have no means of expressing its ideas ament many useful and beautiful things if it be debarred from using popular English names. The plain fact, however, is that such names are unconsciously in daily use by millions, and to try to stop the increasing tendency and desire to thus speak of things in our own tongue is futile in the extreme. The age of hard-word pedantry is being swept away by the era of common sense and real knowledge, and the plainer and more intelligible we can make the language of gardening and garden botany the better both for our art and for ourselves. The question is not whether Latin is preferable to English or English names to Latin ones, but rather as to whether English names are not useful adjuncts to the Latin ones. The question is not whether "*Viola odorata*" or "*Sweet Violet*" is the better name, but whether we are to be debarred from using the name "*Sweet Violet*" in speaking of the plant to an inquirer who has not the slightest idea of what is meant by *Viola odorata*. If an inquirer points to a Palm and asks us the name of it, we may say, "Oh! that is *Phoenix dactylifera*." "Ah! yes," says our visitor, "but what is its English name?" Now comes the rub. Are we to say, "It is the 'Date Palm,'" or are we to simply reiterate what is perfectly unintelligible? "Well, all we can say is that its name is *Phoenix dactylifera*, and that its fruits are edible." We are quite sure that no one, however repugnant English names may be to his instinct and training, would object to the use of the above popular names. The chances are that every scientific botanist uses them by word of mouth in his lectures, and perchance puts them in his text books also. His argument is, "Oh! we don't mind using English names, provided they are genuine ones, but you have no right to coin English names for yourself or others." The only question as regards this point in our mind is as to whether the plant or other object has already a good and well-defined English name. If so, we are always glad to use

it; if it has not, then, as the least of all evils, we have no hesitation in removing that difficulty for those who must speak of it by an English name, or not speak of it at all.

We were not the first, nor are we alone, in this desire to popularise our craft to have it "understanded of the people." We merely continue the work which Chaucer, Spenser, Shakespeare, Gerard, Parkinson, Milton, Bacon, and others began in books, but the vernacular names themselves were in daily use centuries ere books or botanists were thought of as we now understand them. The following extracts from Liddle's "Vegetable Kingdom" (preface to edition 1853) will show how much attention he, as a botanist, gave to it. "Since the days of Linnæus, who was the great reformer of scientific nomenclature, a host of strange names, inharmonious, sesquipedalian, or barbarous, have found their way into botany, and by the stern, but almost indispensable, laws of priority are retained there. It is full time, indeed, that some stop should be put to this torrent of savage sounds when we find such words as *Calucechius*, *Oreigenera*, *Finaustrina*, *Krascheninikovia*, *Gravenhorstia*, *Andrzejskya*, *Mielichoferia*, *Monactineirma*, *Pleuroschismatypus*, and hundreds of others like them, thrust into the records of botany without even an apology. If such intolerable words are to be used they should surely be reserved for plants as repulsive as themselves, and instead of libelling races so fair as flowers, or so noble as trees, they ought to be confined to slimes, mildews, blights, and Toadstools. All should be anxious to do something towards alleviating this grievous evil, which, at least, need not be permitted to eat into the healthy form of botany clothed in the English language. No one who has had experience in the progress of botany as a science can doubt that it has been more impeded in this country by the repulsive appearance of the names which it employs than by any other cause whatever, and that in fact this has proved an invincible obstacle to its becoming the serious occupation of those who are unacquainted with the learned languages, or who, being acquainted with them, are fastidious about euphony and Greek or Latin purity. So strongly have we become impressed with the truth of this view, that on several occasions we have endeavoured to substitute English names for the Latin or Greek compounds by which the genera of plants are distinguished. Upon turning over the later volumes of the 'Botanical Register' many such instances will be found in imitation of the usual English words Hound's-tongue, Loosestrife, Bugloss, Soapwort, or Harebell, &c. . . . If such English names are not universally adopted, it is to be suspected that the circumstance is traceable to the indifference of the public to partial and inconsiderable changes, which are unseen in the ocean of botanical nomenclature. That they are important must be admitted; that the person most careless as to the difficulties of articulation would prefer to speak of a Fringe Myrtle rather than of a *Chamaelaucium*, or of a Griberry than of *Comarostaphylis*, will probably be allowed on all hands; and therefore we do not confess discouragement or failure, but would rather invite suggestions as to the more probable means of success where translation is neither necessary nor desirable in all cases. Many Latin names have from custom been adopted into the English language, and no wisdom would be shown in attempting to alter such words as *Dahlia*, *Crocus*, *Ixia*, or even *Orchis*."

Others, again, are so easily sounded, and are so much in harmony with the English tongue, that nothing could be gained by interfering with them. Such are *Arbutus*, *Wistaria*, *Magnolia*, *Garrya*, *Mimosa*, *Pinus*, and *Vitis*. Even *Oroton*,

Dracena, *Eucharis*, *Geranium*, *Pelargonium*, *Oxalis*, *Fuchsia*, and *Cyperus* may be tolerated, being as euphonic and as easily and readily spoken as any English name could be; still there remains the fact that they are names perfectly meaningless and foreign and unintelligible to most of those who use them, and so very deficient in teaching power or as aids to memory when contrasted with such names as Chinese Pink, Parsley Fern, Stonecrop (*Sedum*), Daisy, or "Eye of Day" (*Bellis*), Quaking Grass (*Briza*), Feather Grass (*Stipa*), Stinging Nettle (*Urtica urens*), and a host of others which, apart from their use as names *per se*, also are useful aids to memory, and actually convey ideas of a definite kind to every English-speaking mind.

The only real difficulty is to choose the prettiest and most definite of English names for all the flowers and plants and trees which will thrive and become beautiful in English gardens, and nothing would contribute so much as this towards making gardening a pleasant study to many, and to all an agreeable recreation or amusement. We all could appreciate the golden glow of the Furze bushes and the grace of the Foxgloves or Bluebells, the sweetness of Violets, Primroses, or Hawthorn, and the angry bite of Thistles and Nettles long before Latin was ever drubbed into minds more in tune with Nature than with books. Popular names enter into our minds even in infancy without a struggle, and they will remain there despite all the efforts of those who vainly strive their utmost to cast them out. B.

ORCHIDS.

DENDROBIUM WARDIANUM.

I saw the other day at Fairlea House a fine example of this beautiful Orchid. In 1880 it bore 120 blooms, but last year it only produced 87, the deficiency undoubtedly being attributable to the fact that it was found necessary to give it more room. Accordingly it was placed in a larger basket, in which it has thrown up six fine growths, the longest measuring 4 ft. 6 in., and carrying thirty-eight magnificent flowers; the remaining five growths vary some little in length, and also in the amount of blooms they carry. The total growth made by the plant this year is 21 ft. 5 in., on which are borne 140 flowers. At Fairlea, no house is specially devoted to the culture of Orchids; several are, however, grown in baskets suspended from the roof of an ordinary plant stove, and others again are grown in pots and pans in the same structure, all of which appear to be doing well. In the case of *Dendrobium Wardianum*, after it has completed its growth, it is taken to an airy greenhouse and suspended from the roof, with the view of having the growths thoroughly matured. In this house it remains until after it has done flowering, when it is again taken to the plant stove to make fresh growth. H. HILLMAN.

Fenay Hall, Huddersfield.

Dendrobium lituiflorum.—I was glad to see that Mr. Baines did not include this *Dendrobium* amongst his shy-flowering Orchids, and I am not quite sure that *lituiflorum* ought to be one of them, for I have no difficulty in getting it to flower under the same treatment as that given the others. We have only a few varieties of Orchids, but these happen to be amongst them. *D. lituiflorum*, grown in an intermediate house, such as Mr. Baines recommends, makes growth 4 ft. long, which at the present time is bristling with flower-buds nearly the whole length. It is on a block with *Spaghnum* over its roots and suspended near the glass.—J. C. C.

Dendrobiums.—*T. A. W.* (p. 94).—If you wish to increase the number of plants, allow the

young breaks to grow upon the old bulbs until they send out plenty of roots, when they may be taken off and put into small pots; if, on the other hand, large flowering plants are wanted, rub off all young breaks on the pseudo-bulbs whenever they appear; by so doing you will give strength to the young normal bulbs. When three-year-old bulbs are too numerous, they should be thinned out; this is especially needful and beneficial in the noble section.—A. PATERSON, *Bridge of Allan*.

British Orchids.—There are two varieties of these, namely, *Orchis mascula* and *latifolia*, indigenous to this neighbourhood. *Mascula* is usually found growing on hedge backings, having a westerly aspect. In such a position it receives large quantities of water, but being elevated some 4 ft. or 5 ft. from the bottom of the ditch it soon drains off; the ground therefore never becomes sodden, a condition under which *mascula* will not thrive. The foliage of this variety is beautifully spotted with dark purple, and the flowers are sweetly scented. We have several plants of it growing on a rockery, fully exposed to the mid-day sun; wild Thyme and *Sedum lividum* grow on the surface of the soil in which some of these Orchids are planted; but such a covering does not appear to be of any advantage, as others near them without any surface covering are quite as strong. *Latifolia* grows in moist situations in the woods and meadows. It is not so pretty as *mascula*, the spots on the leaves being less distinct and the flowers paler. We have it growing under similar conditions to *mascula*, where it flowers and increases in strength every year. Last year's flower-stems of *latifolia* measured from 15 in. to 17 in. in length, and those of *mascula* from 12 in. to 13 in. The soil in which they are planted consists of one part bog to two parts of loam, to which is added a small quantity of sand and lime rubbish.—W. NEILD, *Wythenshawe*.

Old Dendrobium stems.—The difficulty mentioned by "T. A. W." (p. 94) is one that has often troubled inexperienced Orchid growers. Does it do any harm to cut away the old pseudo-bulbs of Dendrobiums that have flowered? At present I do not think that these are of any more service to the young growths than an old Raspberry cane is to the young canes of the current year, although, of course, the Raspberry cane dies, while the Orchid bulb does not. In the case of Dendrobium nobile and primulinum I have cut the old bulbs clean away after the young growths had begun to push without the least apparent injury. Some of D. primulinum treated in this way have made growths stronger than any of the others. The vitality, it appears to me, is not in the old stems, but in the roots and at the base of the old bulbs. What I have done has been of the nature of experiment as yet, but this spring I propose shearing a fine plant of D. Wardianum clean over at the base, like a Phlox, as soon as the flowers are over. The stems run from 1 ft. or so to about 3 ft. in length, and there are about two dozen of them, and if they are any use they should show it. Another similar plant will be left whole. I do not fear the result. The old stems are in no way ornamental, and they are a positive encumbrance otherwise, and if they can be done without, why keep them? Cutting out all the old back bulbs of our Cologynes has had a marked and beneficial effect upon the plants.—J. S. W.

SHORT NOTES—ORCHIDS.

Dendrobium nobile.—What causes the young growths of this to throw out roots instead of growing on? Does it do best in pots or on blocks? and in what temperature should it be grown?—D. B.

Two good winter Orchids.—I send you my first spike of *Odontoglossum pulchellum*, also a single flower from a spike of *Cattleya Leopoldi*, which had six flowers. The plant was imported in November last, and has already made a growth 18 in. long, on which the flower-spike is now open. This is an excellent *Cattleya*, and very distinct; it has been known to produce thirty flowers on one spike.—JAS. DOUGLAS.

Notes from Brynkañt, North Wales.

—We have here in a very exposed position a fine tree of the *Forelle*, or Trout Pear, now nearly fully in bloom. It is completely covered with trusses of unusually large size, and which I am afraid will be killed during our usually treacherous spring. Fruit trees in general are fast swelling their buds, and all promise well; but should we have late spring frosts they would play and havoc with them. *Chimonanthus fragrans* is flowering superbly here on a south aspect wall. In the woods here Snowdrops are abundant, and a sight of them when in bloom is not readily forgotten. I have used them largely for table decoration along with Club Mosses.—J. CLARKE.

Forestry bulletins.—We have received a most interesting series of maps under this name, each well executed and coloured, showing in a very effective way the Pine and other tree supply of certain States in America; they show at a glance, by the use of colour, where the predominating species are, where all the merchantable Pine has been cut, and other interesting details. For a great wooded country like America the most important information is thus conveyed in a simple form. The bulletins, which are published by the Department of the Interior Census Office, Washington, D.C., are dated December 1, 1881, and bear the name of C. S. Sargent, special agent in charge, under whose direction they were compiled.

Crocus destroyers.—I have been annoyed since planting my bulbs by the mice eating out the centre of my Crocuses, and now they are up and in bloom the sparrow amuse themselves by picking them to pieces. Can any of your readers recommend what is best to be done under the circumstances? I do not observe any other bulbs but the Crocuses interfered with. My gardener having planted a special design in several beds, I fear its beauty will be destroyed.—B. M. BRADBEER, *Lowestoft*.

NOTES AND READINGS.

LATE GRAPES ON EARLY STOCKS.—Good Grapes of the rather difficult-to-colour Mrs. Pince's Black Muscat, cut from a Vine grafted on the Royal Muscadine, was one of the exhibits by Mr. Burnett, of The Despeigne, before the Royal Horticultural Society lately. Good black Grapes from a white Grape stock is a novelty, and is not exactly the way cultivators would set about attaining such a result. All the conditions are contrarywise, for it has not either been the practice to graft late Grapes on early stocks, or black Grapes on white ones. The Mrs. Pince must have been pushed reluctantly forward by its earlier foster parent. It would be interesting to learn from Mr. Burnett how the Vine does generally on the early stock, for Mrs. Pince is not a popular Grape, and it is generally of a foxy colour.

HEALTHY UNDERWOOD.—A friend writes, "Deciduous trees prevail in most of our woods, giving them a very dreary aspect in winter," but I lately saw at D— an extensive wood near the mansion in which the evergreen species, consisting almost exclusively of Hollies and Yew, were about equal to the deciduous kinds, and remarkably healthy and well managed, giving the wood quite a warm and furnished appearance, and providing excellent cover. The deciduous trees, consisting principally of Oak, had been thinned out judiciously at an early date, and what were left had all their branches lopped off a certain distance up the trunk, so as to give the evergreens a share of the light, and they had well repaid the care, for they were both large and bushy. No doubt there is much room for improvement in this direction.

ORCHID SALES.—Orchids are now so popular that everybody is anxious to buy, and to buy cheap

if possible. Auction sales present a great temptation in this way, especially sales of portions of private and nursery collections. It is well to bear in mind, however, that only the worst varieties are, as a rule, sold at such sales, and many are victimised accordingly. Sales of imported plants at Stevens' rooms is quite another thing. It is a lottery no doubt there, but one may drop on a "good thing" frequently, whereas selections from private or nursery stock are usually too select. Buyers who have been taken in in that way declare they will never buy again at such sales. Beginners in Orchid culture should know that among the numerous fine species now in the market, numbers of varieties are comparatively worthless. This applies to *Odontoglossums*, *Cattleyas*, *Dendrobiums*, *Cypripediums*, *Calanthes*, *Cymbidiums*, *Lælias*, and many of the best and most popular Orchids. Orchids differ from other plants in this respect. The time to buy is when the plants are in flower, and it is far more satisfactory, and worth ever so much more money to buy good varieties at the start than to commence with bad ones.

QUICK RETURNS IN FRUIT CULTURE.—Examples of free culture of fruit trees on the extension system, becoming now better understood, continue to be forthcoming. The Grape growing at Wheatstone, recorded in the *Chionide*, furnishes a good example of quick and profitable culture. Twelve pounds weight of Grapes have been taken from each permanent Vine twenty months after the eyes were put in, and the canes under the ridge of the house at the tops were "of unusual thickness," notwithstanding the crop borne. Not much waiting here for the Vines getting age, such as is usually considered necessary," says the writer on this subject; and it must be acknowledged that such practice is a great advance on that of the past. The second example is furnished by Mr. Hunter, of Lambton, in *The Gardener*; he has produced a Peach tree from four small shoots in one season that spread over 16 ft. and produced from 123 to 125 branches to each shoot, or an aggregate of nearly 500 altogether. "So well," says Mr. Hunter, "is the space filled up with lateral shoots that I have no wish to add another shoot to the trees." This is the largest tree of its kind we have heard of, though not larger proportionately than some we know of that have produced about 60 ft. of shoots from two buds put in during the past summer on trees planted in the spring of the same year, 1881. We wish Mr. Hunter luck with his tree, and that he will be able next summer to get an equally fine crop of fruit from it, as in all probability he will. Examples of this kind are encouraging. A tree with shoots 11 ft. long, the growth of one summer, and big enough to fill the space allotted to it is a feat compared with what can be accomplished by the old cutting-back system to which not a few still adhere.

DOES PINE-GROWING PAY?—The introduction of St. Michael's Pines, of excellent quality and size, has all but paralysed Pine-growing in this country, especially in market gardens, and even in private gardens Pines may be replaced by equally acceptable fruits, which are also more remunerative; still Pines, it is proved, will pay if well grown. I have before me the figures of a noted grower and well-known exhibitor of Pines at the metropolitan and other shows that prove this. The variety grown is the smooth Cayenne principally, and the season they are ripened in is from May to November, which is not covered by the St. Michael's supply. The batches consist of from one to two hundred plants in a house, and the fruits have averaged from 5 lb. to 8 lb. apiece for years back, and fetched from 6s. to 7s. per

found in Covent Garden, the supply being far in excess of the demand at home. These Pines are, indeed, well known in the market. The plants are grown and fruited in the shortest period, and are never rested in summer or winter. It is very skilful growing, however, that will pay, for unless the plants are all fruited successfully at the proper time, and weigh heavy, the margin of profit will be slender.

HOTHOUSE FURNACES.—Mr. Fletcher, of Warrington, in his lecture on "Economy of Fuel," in connection with the Smoke Abatement Exhibition, has thrown his verdict in against the water jacket and hollow furnace-bar advocates, if hiswelling so emphatically on the advantages of fire-clay over metal for furnaces means anything. In doing so he is only re-echoing the opinions of our early horticultural engineers and boiler makers, who maintained that fuel can only be consumed perfectly and economically in a furnace constructed wholly of fire-brick with the boiler above it. The reason of this is well understood by all scientific men. The worst place for a fire is one wholly surrounded by cold iron, and when you add water jackets and hollow bars the evil is greatly intensified. Probably the most effective and economical heating apparatus that could be devised would be a boiler constructed on the principle of the gridiron, and set over a basin of fire-brick to hold the fire. Such a furnace would consume the fuel thoroughly, and the heat would strike the boiler most effectively and at the right angle.

SEED SHOP NOMENCLATURE.—We know there are varieties and hybrid Pentstemons, selfs and fancy Pansies, Bizarres and Flakes among Carnations, and Picotees of various denominations, but we do not know what "Covent Garden" Pentstemons and Carnations are, and are quite under a cloud on the subject of "Tiger" Pansies and "Grenadin" Carnations, and such like wonders. One would like to know if these have anything but the name to recommend them, and what excellent judgment and taste it is that suggests a nomenclature of this kind. Our plant names are bad and puzzling enough already without the addition of a special vocabulary invented for trade purposes.

SINGLE & DOUBLE CHINESE PRIMROSES.—The double forms of these, though pretty and useful from the bouquetist's point of view, stand in the same relation to the single forms as the hardy doubles do all, i.e., they are inferior and more difficult to grow. We have not yet seen any double Chinese Primrose that equalled in effectiveness a well-grown single one, for the ordinary examples one sees do not show what a fine specimen the single variety makes when sown in time and grown as freely and carefully as a moderately good Chrysanthemum, for example. The single forms are now extremely fine in form and colour, and as large as any one can desire a Primrose to be. Then they are everybody's plant, and may be grown by any one possessing a frame. There used to be a strain described as "pyramidal" in the flowering habit of the plant, and although the Chinese Primrose does show a general tendency to throw up its flowers in this form, one shoot rising above another and forming a bold mass of flowers, there do exist strains, we believe, in which this habit was developed more than in others, and it is a desirable one to cultivate.

ODONTOGLOSSUM ALEXANDRE.—It may be that recent importations of this plant produce inferior forms compared with those imported ten years ago or more, but the reason is probably

that the original importations were better selected. Plenty of fine forms come among present importations. At a sale of Orchids at Stevens' rooms not very long ago a typical example of *O. Alexandre* was exhibited in a pot and was pronounced by noted Orchid growers present to be remarkably fine; indeed, it was shown as such on the auctioneer's table, but from a number of the imported plants bought on that occasion we have had some varieties quite as good, as fine, indeed, as we have ever seen, some of them being pure white—the original form according to some authorities, and the flowers otherwise of good quality and large. Our old friend and acquaintance, Harry Blunt, was not the man, we should say, to gather indiscriminately when he could select, and that is probably what he did in his early importations. Anything in the shape of an *Odontoglossum* will now find a market, and, in the competition of business, collectors are not likely to forget that, and make "all fish that comes in the net."

PEREGRINE.

INDOOR GARDEN.

ZONAL PELARGONIUMS IN WINTER.

If it is desired to have zonal Pelargoniums in profuse bloom during the winter months in private gardens it is essential to success that a house should be devoted almost exclusively to their growth, and that it should be constructed on the most favourable plan. But that plan may be simple enough, and, indeed, any low light house in which *Primulas*, *Cyclamens*, *Cinerarias*, &c., will grow well, will also suit the zonal Pelargonium. If a lean-to house the stages should lift the plants fairly close to the glass. If a span-roofed house it should be low, so that the roof is not far from the stages. An excessive degree of ventilation is not essential, as at no time during the winter is there danger that the atmosphere will get over-heated. The best house of zonal Pelargoniums in winter bloom is to be seen at Mr. Cannell's nursery, at Swanley, and that admits of no side air, though it is 100 ft. in length, and is a span. On cool days all the air given is by means of the doors at either end, which are secured about half way open. There is, however, ample provision for top ventilation by means of sliding sashes. During the winter months there is no great change going on in the internal atmosphere, and the half-opened doors admit of quite enough to supply the waste of pure air that may be caused by the vegetation. What is of most consequence is to secure a fairly dry atmosphere and an equable temperature; one ranging from 45° to 50° is very suitable. Double zonal Pelargoniums, it is found, need some 4° or 5° more heat than singles do to bloom them well. No grower that I know of does zonal Pelargoniums in winter better than Mr. Cannell, and he will tell anyone that one great means to success with him is top heat given by a return pipe which runs on either side of the house just under the glass and just over the plants. This top heat serves to check all moisture from gathering at the lower part of the glass, especially where the flowers come nearest to it; thus both drip and damp are prevented. Out of hundreds of plants in the house at Swanley devoted solely to single kinds, nearly all are in 6-in. pots, and there are perhaps fifty to sixty kinds all blooming superbly; indeed, a more brilliant display of bloom could not be seen in any house even at midsummer. The rule here is to select spring-struck cuttings, and when well rooted in 3-in. pots to shift them into 6-in. pots, pinch the shoots and stand them in a house or in frames for a few weeks to induce rooting; then the plants are placed in the open air till August, when they are brought into the house and permitted to bloom. These plants will flower persistently for six months or longer. The exposure in the open air is most beneficial; when some years since I used to grow zonal Pelargoniums for exhibition, I always exposed the plants after they were well rooted in

9-in. pots to the full glare of the sun in the open air, the pots being plunged in ashes. By constant pinching, turning, and feeding the plants became, when 2 ft. across so firm and compact, as not to need a single support, and, getting into bloom in August, they would flower grandly right into the winter. They only wanted a little more warmth to have kept them in fine bloom all the winter. Mr. Cannell's white *Eureka* is a beautiful white kind, blooming most profusely. *Lumen*, *Lizzie Brooks*, *Henri Jacoby*, *Mrs. Moore*, *Commander-in-Chief*, *Constance*, *Mrs. Straut*, *Fanny Catlin*, *La France*, *Atala*, and *Edith Pearson*, are all superb winter bloomers, the pips good, and the colours in the dull winter light of singularly refined hues. Of doubles the very best in bloom at Swanley were *Jules Simon*, *Charles Darwin*, *Aglaia*, *M. G. Lowagie*, *F. V. Raspail*, *Henri Cannell*, *General Galliflet*, *Sergeant Hoff*, *Madame Dalloy*, and *Heroine*. A. D.

Climbing plants.—I have just built a verandah facing the south, and covered it with semi-transparent or ground glass. Can anyone give me the names of six good plants to clothe the pillars? I also six climbers for the roof, and eight to cover the back wall? I should like for the roof and wall such things as would be benefited by protection. I also want four climbers for a warm conservatory, but as it would be inconvenient to plant them inside, I propose to plant them in a warm border outside, and introduce them into the house in the same way that Grape Vines are often treated. What will grow on the roof of a heavily shaded fernery?—GLENGALL.

Freesia refracta ALBA.—This charming white flowered plant is exceedingly useful for the production of flowers for cutting in winter. They are deliciously fragrant, and are arranged in spikes, with a peculiar bend, the stem of which continues to throw out additional spikelets of bloom. The plant lasts in beauty for several months during the very depth of winter, and the flowers when cut and placed in water remain in good condition for more than a week, emitting all that time a delicious perfume. For forming bouquets or for ladies' hair, scarcely any blooms can surpass those of this *Freesia*, which is nearly if not quite hardy; at all events, it comes into bloom early in December in a cold pit, or in the temperature of an ordinary greenhouse. The bulbs should be potted in any ordinary light rich soil early in August, placing five bulbs in a 6-in. pot.—F. G.

SHORT NOTES—INDOOR.

Climbers for roof of old vinery.—Having an old Vinery without fire-heat, and being desirous of having some kind of flowering climber trained upon the roof for cutting flowers from, I should be greatly obliged for information as to the best kinds from any of the readers of THE GARDEN.—A. L.

Nicotiana affinis.—I have a number of plants of this well grown and healthy, and from 6 in. to 12 in. across, but none of them show any signs of flowering. At what time do they ordinarily bloom? and if mine are past the blooming time, is it any use to keep them for next year?—NICOTIANA.

Alocasias (G. N.).—Those belonging to the deciduous section, such as *Lowi*, *Veitchi*, and *Jenningsi*, should be kept much the same as *Marantas*, but somewhat drier, and, like them, they require repotting now. *Metallica*, however, being an evergreen, must be kept in a growing condition during the winter.—T.

Marantas (G. N.).—During winter these should be somewhat rested by giving them less water than when growing, but on no account allow the soil to become quite dry. The temperature in which they are kept should never fall below 55°. Plants thus wintered will now be starting into growth, and will require repotting in good open material.—T.

New white Primroses (E. Saunders, Abergavenny).—The blooms you send represent a very fine variety, being pure in colour, beautifully fringed, with broad, overlapping petals over 2 in. across; and if the plants are vigorous in growth, and carry their bloom well above the foliage as you say they do, the variety is certainly a valuable one.

NOTES OF THE WEEK.

THE DOUBLE YELLOW WALLFLOWER, sweetly scented, comes from Belvoir in a sturdy winter-blooming state. This flower is always welcome, and we hope it may come into general use in our gardens again, as these old double Wallflowers are very beautiful, and better than the large, coarse German race. An *Anemone fulgens* in splendid condition comes from the same source.

RHODOSTOMA GARDENIODES.—This handsome stove shrub is seldom seen, but, nevertheless, it is well worth attention, as it habitually at this season bears a profusion of white Bouvardia-like flowers, deliciously scented, though not adapted for cutting purposes on account of their short stalks. It is a native of South America, and forms an attractive object just now on the side stages in the Palm house at Kew.

DAFFODILS FROM HILL OF HOWTH.—"St. Bridgid" sends her first Daffodils. They opened on Sunday last, but soon found that it was not the "winds of March" they "took with beauty," but a fierce gale in the heart of February that next day laid them low, from which pitiful helplessness "St. Bridgid" has raised them and sent a handful. We have seen no such Daffodils yet about London.

INDEX TO "MANUAL OF CONFÈRE."—We have received from Messrs. Veitch & Sons, Royal Exotic Nursery, Chelsea, a copy of a new and complete index to their work on the *Confère* recently published by them, the index issued with the book being considered insufficient for ready reference. Messrs. Veitch inform us that they will be happy to send this new index to anyone possessing the book on application at their nursery.

ARISEMAS AT KEW.—A full and interesting collection of these curious plants form one of the special features now at Kew. All the species are located in one corner of No. 8 house; therefore anyone interested in them may study them at leisure, and readily compare their peculiar characteristics. Only one at present is in flower; this is of course *A. præcox*, one of the most strikingly singular of the whole group. Of late years these plants have received the attention which they deserve at Kew, and the collection is very creditable and well cultivated.

LACHENALIA NELSONI.—Though the old and well-known *L. tricolor* is beautiful when well grown, it is surpassed by the new kinds that are now happily coming into general cultivation. One of these is *L. Nelsoni*, a hybrid raised by Mr. Nelson, of Aldborough. It is a handsome plant, having a long raceme of rich orange blossoms, that quite overtop the foliage. Some good flowering plants of it may be seen in house No. 7 at Kew, and also at the Hale Farm Nursery, Tottenham. It is a vigorous grower, and appears to be a freer flowerer than many others.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—We are informed by Mr. Cutler that the committee of this institution have received from the Arthur Veitch Memorial Committee the sum of £800 14s. 2d. This amount will, by the express desire of the Memorial Committee, be placed to the account of the Pension Augmentation Fund.

ANEMONE BLANDA.—This beautiful early spring flower comes to us from Belvoir, where Mr. Ingram makes happy use of one of the most brilliant and beautiful of the alpine flowers of the southern mountain ranges of Europe that has ever come to our shores. The leaves are exquisite, with their under-surface of dull claret colour. The colour of the flower is a very fine blue, the

outside being a deep, rich blue-purple. It is near the Apennine *Anemone*, but distinct in its earlier blooming and in colour.

LEUCOCYUM ÆSTIVUM.—In THE GARDEN (p. 93), the early Snowflake is thus named. We suppose this must be *vernum*, as *æstivum* usually does not flower with us before May.—T. H. KRELAGE, *Haarlem*. [Our correspondent who sent us the flowers of the Snowflake in question no doubt had forced them into early flower, as in the case of the *Hemerocallis flava* sent with it, and this accounts for its earliness. We have not seen it yet in flower in the open air, but *L. vernum* has been out several days.]

CALLIANDRA HEMATOCEPHALA.—This is a very striking leguminous stove plant, the flowers of which owe their beauty to the bright scarlet tint of the long thickly set stamens which rise in Mimosa-like heads, consisting of thirty or forty florets. The pistils are of the same tinge, and being only slightly longer than the stamens are scarcely distinguishable from them, while a soft white staminal development at the base affords some contrast to the brilliant colour, and gives an apparent substantiality to the flower. The leaves are bluish green, openly pinnate, and gracefully disposed.—J. W., *Edinburgh*.

STAPHYLEA COLCHICA.—This beautiful shrub seems to be rapidly increasing in estimation as a first-rate plant for forcing into flower early in the season. The delicate green foliage and large pendulous bunches of lovely white blossoms render it a most valuable subject for those who have a great demand of cut flowers to meet at this season. There are few, if any, shrubs that possess such elegance of growth or such purity of blossom as this new Colchic Bladder Nut, and at the same time are so easily forced into flower early. There is a fine display of it just now in the Royal Exotic Nursery, Chelsea, where it is largely grown for cut flowers and for other decorative purposes.

VELTHEIMIA VIRIDIFOLIA.—Any one wishing for a handsome, easily grown, and altogether satisfactory greenhouse plant, should make the acquaintance of this—one of the myriads of bulbous plants brought from the Cape of Good Hope. The foliage is ample, bright green, and handsome, forming a compact tuft, from the centre of which rises the stout flower-stem about 1 ft. in height, and bearing on its upper half a dense cluster of flesh coloured blossoms that remain a surprisingly long time in perfection in a cut state, as well as on the plant. It is easily grown in an ordinary greenhouse. It may be seen finely in flower in house No. 4 at Kew.

ARCTOTIS GRANDIFLORA.—From Mr. Lynch, Botanic Garden, Cambridge, come flowers of this very beautiful Composite, each flower measuring upwards of 3 in. across. They are bright orange-yellow in colour with a deeper coloured disk, and are borne on long stalks well above the deeply-cut foliage, which is covered with a whitish down on the under surface. Though by no means a new plant, it has become extremely rare, and, as Mr. Lynch says, it is probably not to be met with anywhere, except at Cambridge and Kew. It is certainly a plant that deserves to be popularised, and now that the "Marguerites" are so much in fashion, it may be not inappropriately called the Orange Marguerite. It is a native of the Cape of Good Hope, and requires greenhouse treatment.

TRECOMA AUSTRALIS.—Of this pretty greenhouse climber Mr. Green sends us from Sir George Macleay's garden, at Pendell Court, Bletchingley, a very fine flowering branch which shows what a beautiful plant it is when well grown. The flowers are small, tubular, and white,

streaked and pencilled internally with purplish red, but borne so profusely as to amply compensate for their small size. The foliage, too, is elegant and deep green in colour. Mr. Green sends two shoots out from two plants under different treatment—the one under liberal treatment, the other not so. The branch from the latter is poor and flowerless, while that from the well-fed plant is very fine, clearly indicating that the plant requires liberal treatment to grow and flower it successfully. It is a native of Norfolk Island, and has long been in cultivation. It was figured in the "Botanical Magazine" at the beginning of the century under the name of *Bignonia Pandorea*.

RARE SPRING FLOWERS.—Mr. Kingsmill, of Eastcott, Pinner, sends us the following beautiful flowers, viz., *Chionodoxa Lucilia*, the lovely blue Squill-like plant so much admired by everybody; *Galanthus Redouti*, one of the finest of the Snowdrops, and one that has the broadest foliage; *Iris reticulata*, fresh in all its rich spring beauty of purple and gold; the chaste beautiful spring Snowflake (*Leucocycum vernum*), the almost perpetual flowering *Triteleia uniflora*, and a few highly coloured *Primroses*. Mr. Kingsmill has also in bloom *Cyclamen Atkinsii*, *Scilla bifolia*, *Muscari botryoides*, *Anemone stellata*, and *Crocus minima*, from Corsica. From Glasnevin come the netted *Iris* (*I. reticulata*), *Hepatica angulosa*, *Scilla bifolia*, *Saxifraga crassifolia*, *Cyclamen Coum*, *Erica carnea*, and *Rhododendron præcox*, one of the finest of the early kinds with pretty heads of rosy purple flowers. All beautiful plants, which should be grown extensively for the sake of their early bloom.

EARLY HARDY RHODODENDRONS.—Mr. Davis sends us from his nursery at Ormskirk flowers of two very pretty hardy *Rhododendrons*, *R. dauricum* and *R. præcox*, a hybrid between *R. dauricum* and *ciliatum*. It has large blossoms of a pleasing rosy purple produced in compact dense clusters. Both are extremely desirable plants for flowering at this season. Concerning them Mr. Davis writes: "*R. dauricum* is generally about a fortnight earlier than *præcox*; it is now in full bloom, and *præcox* will not be in flower for a week or ten days. The male parent (*R. ciliatum*) is later, and gives the bushy-growing character to *præcox*. *R. præcox* deserves to be more generally cultivated as an early-blooming hardy evergreen. It is now more than twenty years since I first sent it out, and, although I have distributed a great number during that time, it is nevertheless comparatively unknown. *R. præcox* is much esteemed as a good forcing plant, as by successive years' forcing it may be brought into flower early in November."

Green with cut flowers.—Referring to Mr. Muir's remarks on this subject in THE GARDEN, allow me to say that *Acacia lophantha* is specially adapted for supplying a green that is both lasting and graceful; but the best substitute for Fern that I have yet found is *Tansy*. Unfortunately it is not obtainable all the year round, but I know of nothing so lasting in water, or that looks so well when arranged with cut flowers. Asparagus tops can also be used with good effect. A beautiful combination of colours is also produced by the use of the variegated portions of Carrot tops in arrangements of *Chrysanthemum*. Carrot foliage, too, is of short duration, but there are sufficient hardy foliaged plants for all times of the year, and equally appropriate for the purpose in question.—E. MORGAN, *The Butts, Harrow-on-the-Hill*.

—*Grevillea robusta* I see is used for associating with flowers when cut. In addition to this elegant-foliaged plant add sprays of *Thuja Lobbi*, *Thujaopsis borealis*, *Retinospora obtusa*, and many other choice kinds of *Conifere* and you will have greenery both durable and attractive.—W. B., *Widmore*.

TREES AND SHRUBS.

A NEGLECTED BRITISH TREE.

THE common Juniper is not a popular evergreen; we are not sure that anybody ever plants the common kind; certainly we have no remembrance of seeing it in good form in gardens except the upright variety. Nor does it take a high place among our native evergreens, and we have been lately wondering why this is so on seeing specimens of it in Surrey. Anything more picturesque or beautiful it would be hard to see, and, as evergreens, quite worthy of ranking with the Box trees, Elm, and Yew, which in the same county are singularly beautiful, as, for example, on the hills between Guildford and Dorking. Reading Bentham the other day, we saw in the description of the Juniper that it was an "evergreen shrub sometimes procumbent, sometimes ascending or erect, 2 ft., 3 ft., or even 4 ft. high!" This set us thinking

the points we are speaking of are less important than the shape of the individual leaf or any single detail. Thinking of this grievous and singular injustice to the native Juniper which we had admired in such profusion of beauty, we asked Miss Jekyll to measure some of the specimens near Godalming, and, having measured them accurately, she kindly sends us the following—

JUNIPERS ON HIGHDOWN HEATH.

A tree 17 ft. high by 13 ft. wide. Several stems when young had been laid down by snow, and lie along the ground 3 ft. or 4 ft. before rising.

A tree 22 ft. high by 6 ft. wide. One stem, the trunk showing clear about 4 ft.

Old tree completely wrecked by wind and snow, 18 ft. high, lying down.

Tree of spreading shape, 15 ft. high by 14 ft. wide. Four principal stems, one laid down; stems 7 in. to 8 in. diameter.

Large tree, 24 ft. high. Five principal stems,

14 ft. high, with 18 in. of clear stem. When they grow with many stems from one root the forms they take are still more varied, and the spire shape, even of individual parts, is rarer. In this case they tend to make great bushy heads and long side branches, with somewhat the habit of an old Arbor-vita. The bush-shaped masses are very liable to injury by snow; a mass of snow resting on the top will split the whole bush open outwardly, but the stems grow upwards again from the prostrate ends, making at last still larger bush-shaped groups. This may be observed in a large proportion of cases, and what may be easily mistaken for a young tree, even at 12 ft. distant from the root, proves to be the end of a fallen branch, the horizontal part being buried by Fern and Moss. The colour of Junipers is at all times beautiful; in some lights silvery, in others a cool, dusky green, with rusty shadows; the rough grey bark gets a pale emerald green mossiness, fading to quite white, with the look of frosted silver, and the pretty masses of berries pass from palest green, through olive, to the colour of ripe purple Plums with a delicate bloom. The fruit and whole plant has a delightful Myrtle-like smell when bruised. In the flowering season it is interesting to see the dense clouds of yellow pollen that are shaken out when a bird settles or anything moves a branch. Honeysuckle and wild Juniper are constant allies; the Honeysuckle shoots up through the branches and tumbles out at the top in bunches and garlands and all manner of graceful shapes, and when an old tree dies it often takes complete possession and buries the old Juniper in a mass of new life. Examples of this may be seen in what look like solid bushes of Honeysuckle, 7 ft. high by 9 ft. wide. These wild Junipers are best seen in winter, or any time between October and May. In summer they are 6 ft. deep in bracken.

FLOWERING DOGWOOD.
(CORNUS FLORIDA.)

THE majority of the Dogwoods have inconspicuous flowers, but remarkable exceptions to this character are the pretty little Canadian Cornel (*C. canadensis*), and the neat little *C. suecica* that inhabits our alpine moors, both of which have conspicuous white bracts encircling the unattractive flowers. Another species furnished with large involucral bracts is *C. florida*, an illustration of which accompanies these remarks. It is a low-growing tree, inhabiting the temperate regions of North America, where it attains a height from 10 ft. to 20 ft. In spring and early summer it is covered with large white flowers, which are succeeded by red berries, thus rendering the plant attractive at two distinct seasons. The bracts are sometimes rosy pink, but their colour varies pretty much according to situation. It has been under cultivation in this country for several generations, but has never become common; indeed, it is only to be found in unusually full collections, or in very old tree gardens and nurseries, but such a beautiful shrub is certainly worth attention. It is perfectly hardy, and grows well in any ordinary good garden soil. Seeds of it are sometimes imported from Virginia, and these afford a ready means of propagation. They should be sown in sandy soil, in pans or boxes, which should be protected from frost or drought, as the seeds usually take a long time to germinate. The seedlings, too, should be protected until they are strong enough to be planted out.

W. G.

PLANTS FOR SHADY POSITIONS.

THE list of hardy plants suitable for growing under the shade and drip of trees is, comparatively speaking, very small and principally con-



Cornus florida.

of how much botanists pay attention to trifling details of structure while ignoring the larger facts and the beauty or stature of a plant or tree. It was so necessary in ages past, and till recently, to acquire a hold of some correct, or at all events understandable, system of naming plants that perhaps this is excusable, but certainly it is nothing to be proud of. The aspect, beauty, flowers, fruit, varying shades of colour from time to time, effect in the landscape, all these are most important and delightful things for the artistic and gardening world generally, which are often wholly lost sight of in the books which teach one of plants. It is fair to say, however, that to acquire a knowledge of these facts, more time and more observation is required than is necessary in the case of the structure of a plant, which can be examined in a dried specimen. Let no one, however, say that

the largest, 1 ft. diameter at 1 ft. from the ground.

Largest tree of a fine group of ten, cannot be less than 25 ft. high. Single stem; shape like an Italian Cypress.

It is curious to observe the variety of shape assumed by these wild Junipers. Trees with single stems shoot up tall and straight, but even these take different forms; sometimes as massive columns 4 ft. to 6 ft. wide, of nearly equal width throughout their height, and with rounded tops; but often in spire shape, tapering gradually to the delicate little leader only a few inches long, which hangs over with dainty grace. This spire shape seems to be the typical habit, as it may be observed in scores that have been sheltered and are uninjured, and a fairly typical measurement of one of them would be 2 ft. 6 in. wide at the leafy base, and 12 ft. to

fined to those that are British. Amongst this useful class of plants the following are those generally in use, several of which, though of a low trailing habit of growth, are admirably adapted for carpets for our larger woodland trees, viz. St. John's-wort (*Hypericum calycinum*), Periwinkles (*Vincina* major and minor), Butcher's-broom (*Ruscus aculeatus*), Spurge Laurel and Mezereon (*Daphne Laureola* and *Mezereum*), and our common British Ivy (*Hedera Helix*). The St. John's-wort, a beautiful dwarf creeping plant, soon covers a considerable surface of ground and forms a dense evergreen mass, covered in summer with bright golden flowers. It is easily propagated by division of the roots, and when planted in clumps 2 ft. apart these soon unite and form a dense mass. Not only is the St. John's-wort useful for planting beneath deciduous forest trees, but invaluable for covering the base of walls where few other plants could exist. Many are under the impression that the St. John's-wort is injurious to trees under which it is growing, and although cases have occurred here in which trees, principally Horse Chestnut, surrounded by this plant gradually became unhealthy and ultimately died, still I believe the cause of decline to be traceable to another source than that under consideration. Periwinkles are similar in habit to the St. John's-wort; they are valued for their long continued flowering and as evergreens adapted for growing in the shade. A very pleasing effect is produced by having mixed patches of Periwinkle and St. John's-wort, as in summer the contrast of co-mingled yellow and blue is strikingly beautiful. The double and white-flowering varieties are very pretty, and make excellent rock plants.

The Butcher's-broom is a fine glaucous green shrub, densely covered with sharp prickly leaves, and invaluable for planting in shady places; indeed, in such positions it seems to be quite at home. Here it flowers and fruits freely beneath half standard Rhododendrons, where few other plants would exist, let alone succeed. The twigs of this shrub were formerly used by butchers for sweeping their backs, hence the English name. A striking peculiarity about this plant is that the flowers are produced on the middle of the leaves, on the upper side, and when they first appear they are similar in size and shape to the head of a pin. The female flowers are succeeded by pretty red berries. The broad-leaved Butcher's-broom (*Ruscus Hypophyllum*) produces its flowers on the under sides of the leaves, and its berries are smaller than those of *R. aculeatus*.

The Spurge Laurel and Mezereon have highly fragrant flowers. The former grows from 3 ft. to 4 ft. in height, always symmetrical in figure and useful as a stock on which to graft the rarer kinds. The Mezereon of our gardens is found wild in mountain woods in many parts of Europe, especially the middle and south, also frequently in various parts of England, but it was first introduced into this country before it was observed to be a native. It is much admired for its precocity and fragrance, and although most parts of the plant, especially the berries, are a powerful poison, yet it still remains a universal favourite in most gardens.

Than our common British Ivy, though in some cases not desirable, few plants are better adapted for carpeting our larger woodland trees. The dark glaucous evergreen leaves, creeping habit of growth, and extreme hardness renders this plant a particular favourite with most people. In many places it is, however, quite a nuisance, no end of trouble being taken to eradicate it from young plantations. A damp climate and maritime situation seem to foster the growth of Ivy, and in woods where it prevails to a great extent its growth seems inimical to underwood generally. As an ornamental plant for covering bare walls or any unsightly garden object it has no equal, and it seems to luxuriate in almost any soil or situation.

The above list includes only plants of dwarf habit; several others of more robust growth are, however, equally applicable for planting in shady

positions, the principal amongst which are Box, Aucuba, Privet, Rhododendron, Yew, Holly, evergreen Oak, and in situations not too confined the different kinds of Berberis and Laurel may also be successfully employed.

A. D. WEBSTER.
Penrhyn, North Wales.

CHIMONANTHUS FRAGRANS.

THE delightful fragrance emitted by the blossoms of this Japanese shrub renders it a most desirable object in every garden, and especially as it blossoms in the winter season, when all else is destitute of bloom. A better plant for growing against a warm wall could scarcely be named, particularly if near a walk from which its fragrance would be perceptible. It will grow in any kind of soil, and is perfectly hardy, though it likes the protection of a wall, and besides in such a position the blooms can receive some slight covering when frost happens to be severe. *C. grandiflora* has larger flowers than those of *C. fragrans*, but both are desirable. *C. pauciflora* has smaller flowers than those of the first, and in *C. leuta* the flowers are yellow, both inside and outside, instead of crimson in the interior, as in the other forms. These may all be raised by cuttings inserted in sand under a bell-glass in a gentle hotbed.

W. G.

FRUIT GARDEN.

KEEPING LATE GRAPES.

In visiting several gardens of late, where a considerable stock of Grapes was still to the fore, I was much impressed with the fact that most of them were more or less shrivelled. Where the Vines were inside the house it is easy to see how that condition, so favourable to long keeping, might be brought about by withholding water, but in the case of outside Vines and uncovered borders it seems certain that by no possibility could the slight shrinking or shrivelling of the berries be caused by dryness at the roots, for this winter may be said to have been a sort of alternation between gales and floods, either abreast or in quick succession. We are, therefore, perforce driven back on the alternative of a very arid atmosphere to account for the shrivelling. As to the effect of shrivelling on keeping, every practical man is familiar with the fact that when Grapes get into this condition they will keep almost any length of time. It is not only that the berries have lost some of their thinnest sap, but that their skins seem to have become well-nigh vapour and air proof. Possibly the latter has more effect on the keeping of Grapes than the former. Grape juice or flesh can hardly be decomposed in the absence of air. Let the latter enter and some sort of decomposition or fermentation follows on its heels, and the Grapes are doomed. No doubt such a good keeping Grape as the Lady Downes owes much of its immunity from decomposition to the semi-impermeousness of its thick rind to air. The flesh is also firm and comparatively free from juice; hence it requires more eating than any other Grape. The Alicante, which does not equal the Lady Downes as a keeper, has a thinner skin, and is far more full of juice. Muscats, again, keep very much in the ratio of their fleshiness. The more juicy the more danger of decay, and *vice-versa*. Hence Muscat of Alexandria, plump, with juice high unto bursting, keeps badly; the same Grape slightly shrivelled keeps well. In fact, white Muscats in that state rank hardly second to Lady Downes in their good keeping properties. The same characteristic features and qualities are still more prominently developed in black Muscat Grapes; such, for example, as Snow's Muscat Hamburg and Mrs. Pince. Another curious peculiarity in regard to the latter is that as a rule those imperfectly coloured keep the longest. I have lately seen and tasted Mrs. Pince Black Muscat of a dull colour, luscious as the best Muscat of Alexandria and with all the appearance of out-keeping well-ripened Lady Downes

beside them. They were slightly shrivelled, though both Lady Downes and Alicante grown by their side were firm and plump and black as jet. I have also seen Muscat Hamburg, slightly shrivelled, keep good till April. In view of such facts any information on the art of shrivelling Grapes with a view to their longer keeping, while preserving their qualities intact, could hardly fail to prove interesting and instructive to many.

D. T. FISH.

FIGS UNDER GLASS.

To grow Figs in perfection a good climate is required, and, if we have it not in the open air, we must grow them under glass. I have never been quite satisfied with Figs grown in unheated houses, as it is very rarely they bear as well as they should do. In some cases want of fruitfulness has been owing to an absence of control over the roots. Figs everywhere must be kept well in hand, especially in cold houses. If they have unlimited root-run they soon grow too rampantly, the wood fails to ripen, and consequently there are few or no Figs. It is astonishing in how little root space a large Fig tree can be kept, and, too, in health and fertility. I learnt early in my gardening career a useful lesson as regards the small requirements of the Fig in this particular. In those days the Fig houses and all the other forcing houses were heated with flues, and the flue in the case of the Fig house, after running round the front of the house, returned under the back path, leaving a back border about 18 in. wide, and in this 18 in. border the best and most fertile trees in the house were planted. They were, of course, well fed at the time they required it, both by top-dressings and with liquid manure. If the roots of the trees are confined to a small space, there is no occasion to put them, so far as the soil of the border is concerned, on starveling diet. If the bottom of the border be concreted and well drained, and the front defended with a brick wall, we may safely make a good border within limited dimensions. Good sound turfy loam, liberally intermixed with crushed bones, will make an excellent border. What other support they require can be given in a liquid form, or by top-dressing, just before the fruits take their last swelling. I have known Fig roots to bore their way through a 14-in. wall if there was a well-supplied larder on the other side. So I suppose they have no power of self-control, and hence the necessity for bricking them in firmly and securely.

The Fig planted on the back wall of the house in question was a white one called White Neril, synonymous, I think, with White Marsaillese. The first fruits began to ripen at the warm end of the house about May 1, and they ripened in succession all down the house. By the time the ripening process had advanced to the cool end, the second crop at the warm end was fit for use. There were trees planted in the front border, and others were in pots on the flues. The latter did well, being elevated on inverted pots. If the roots of a Fig tree are happily situated, with fairly good management the tree must succeed; but, as I have already said, if a house is built for Figs at all, it should be heated. Then the first crop can be helped on a little, and the second may be gathered without trenching too severely on the powers of the tree, or doing injury to the embryo crop that lies dormant at the base of the leaf-stalks.

One of the most important matters in connection with Fig culture is keeping the shoots thin early in the season, so that the young growth as it breaks away may be surrounded on all sides with light and air. Too often disbudbing is delayed, and the first leaves are weakened in consequence. If too many shoots are produced, which is nearly always the case, those that are not required—generally the weakest—should be removed when they can be rubbed off with the thumb and finger. If a tree possessing such large foliage as the Fig is to bear all over the surface, it must be early and freely disbudbed, and, after the young growths have made five leaves, the central bud should have as much pressure applied by the finger and thumb as will damage the tissues and cause the bud to

dwindle and die gradually without much bleeding. This pinching should be done successively as each shoot requires it, and there is no doubt that this same rule should be applied in all cases, so that no great check may befall, and the roots be maintained in a gently active condition without undue excitement, which does and must happen if too much pinching is done at one time. As a rule, the greater part of the pruning of a Fig tree is done in summer; but if the old branches are thickly placed, some of them can be removed when the trees are cleaned and re-trained.

Where Fig trees cast their first crop of fruit, if this arises from a lack of force in the tree, simply cutting out the leading or terminal buds will, by throwing back the sap, often keep the fruits from falling until they have made their position secure and become strong enough to assert themselves. In the early stages of the growth of young Figs that are forced, care should be exercised to guard against checks from the use of cold water

most suitable. Under such treatment the wood is hard and short-jointed, the leaves are short-stalked and of substantial texture, and the fruits are freely produced from the axils of every leaf.

As may be supposed, a tree that does so well by confinement of its roots is especially adapted for pot culture. So far as regards the management of the branches—that is, the keeping of the growth thin, and the pinching as required—the routine of pot treatment is pretty much the same as when planted out. Figs may be grown in pots where a house cannot be given up to them, and they may be brought forward in an early viney or Peach house. With some kinds of Figs it has been found best to prune the trees hard back in autumn, and start early close to the glass in a light house; disbud freely, pinch at the fifth leaf, and trust to the young wood for the crop. In this case the chance of a first crop from the old wood is sacrificed in order to insure a large full crop a little later. In a light house, with

red, sometimes tinged with dirty crimson, especially in the neighbourhood of the eye, speckled with grey, having the surroundings flattened. Buds ovoid, large, separated from the wood, downy, and with the scales very glaucous. Leaves, pretty large, thick, rarely abundant, elongated, oval, twisted, channelled, downy, with the edges quite entire, the stalk short, thick, and stiff. Fertility, remarkable.

CULTURE.—Being a very vigorous tree, it grafts equally well on a free stock or a Quince, and forms fine handsome pyramids.

DESCRIPTION OF THE FRUIT.—Size, medium. Shape, pretty variable, but most usually rounded and flattened. Stalk short, thin, curved, inserted obliquely in a funnel-shaped cavity. Eye, small, open, often badly developed, only slightly sunk. Skin, greenish yellow, speckled and striped with red, with fawn-coloured and blackish patches. Flesh, whitish, fine, melting, juicy, slightly gritty. Juice, abundant, sugary, fresh, acidulated with a peculiar and very pleasant perfume. Season, from about the middle of October until December, and sometimes even into January. Quality, first rate.

HISTORY.—Opinions are somewhat divided upon the origin of this variety. In 1536 Benedictus Curtius, a Florentine writer, in his "Arborum Historia," tells us that it came from Bergamo, in Lombardy; and Valerius Cordus, a German naturalist, who published a "Historia Stirpium," agrees with him in this opinion, which was reproduced later on in Silesia by Jean Jonston ("Dendrographias," 1652, p. 38), and again in France by La Quintinie, and, above all, by la Bretonnière ("École du Jardin Fruiter," 1784, vol. i., p. 415). The record was first promulgated by a Dutch physician, Jean Bodeus, in book iv., chap. 6, of his translation of the "Historia Plantarum" of Theophrastus (born 370 years before the Christian era), which has it that the Bergamotte comes from Asia, whence the Romans imported it into Italy and used it at their tables under the name of Pirum Regium, or the Pear of Kings, the epithet showing how highly it was esteemed by them. This version of its origin also figures in the "Dictionnaire Etymologique de la Langue Française," by Ménage, 1750; "Les Agréments de la Campagne," by Lacour, 1752; "Systematische Pomologie," by Henri Manger, 1783. As for ourselves, the conclusion that we have arrived at is that, knowing how greatly Europe is indebted to the East for much of its oldest and best fruit, we must look upon Asia as the home of this Pear. Furthermore, if we consult the most erudite of Italian pomologists, Agostino Gallo, who in 1859 amongst other Pears described the Bergamotte in his "Vintigiornati dell'agricoltura," we find that he says nothing about its being a native of Lombardy. Had it been so, he would have been anxious to have said so, as he calls it the best of all the autumn varieties. In any case, if we side with Ménage, Lacour, and Manger in believing that it comes from the East, we cannot think that its name is derived from the Turkish, Bey Armandi, the Prince's Pear. It is not probable that the Turkish language has anything to do with the name of this Pear, which, if it is a native of Asia, has no doubt been named after the ancient city of Pergamus in Asia Minor now commonly called Bergammo. Besides this Lindley in his "Guideto the Orchard and Kitchen Garden," 1831, says that it is supposed to have been cultivated in England ever since the days of Julius Caesar, long before the Turks ever set foot in Western Asia. In France it was known much later, and Charles Etienne in his "Seminarium," 1540, fixes the date of its introduction within a few years. "This Pear tree," he says, "is only just beginning to be cultivated in France." One thing is certain, and that is that it was known in France before 1533, because in that year Rabelais tells in his "Pantagruel," book iii., chapter 13, that his hero *s'esquadrassoit de manger bonnes Poires Bergamotes* (enjoyed eating good Bergamotte Pears). They must have multiplied rapidly within the next fifty years, for Olivier de Serres writing in 1600 tells us "that their exquisite flavour having gained them a high reputation they were known from one end of the kingdom to the other,



Chimonaanthus fragrans.

at the roots or over the foliage, or from want of care in the ventilation, as the young fruits are easily cast off, especially those of particular varieties. Sometimes, though rarely, Figs will drop when half grown; this is due to deficient fertilisation. The Fig tree is peculiar in many respects, but in none so much as in this matter of setting. The blossom is contained within the fruit itself, and when about half grown the orifice or eye at the upper end expands, showing its peculiar organisation. During the flowering season less moisture should be used in the atmosphere than at other times, and a brisk buoyant temperature should be maintained for a week or so, till fertilisation is complete. If Figs are forced, the temperature of the early viney will suit them, and the less fluctuation there is the better; of course, the proper balance between night and day and between bright and dull weather should be maintained. A firm border when planted out, or firm potting when grown in pots, I have always found

the plants near the glass, this plan answers very well.

The best Figs for forcing are the White Nerii and the Brown Turkey—at least, such is my experience; but anyone who has the time and means to experiment with some of the numerous varieties known in other countries might do us good service.

E. H., in *Field*.

THE BEST PEARS.

(Continued from p. 377, Vol. XX.)

Bergamotte d'Automne.—*Syns.*—Bergamotte Pear, Common Bergamotte Pear, Bergamotte Recour, Bergamotte Lisse, Bergamotte de la Hilière, Bergamotte de Recour, Grosse Ambrette, Bergamotte Rouwa, Vermillon Supreme, Bergamotte Melon.

DESCRIPTION OF THE TREE.—Wood, strong. Branches, few in number, generally spread out, and curved towards the base, erect near the top, very thick, short, geniculated, downy, greenish

and that among autumn Pears they occupy the place of honour."

REMARKS.—The ripening of this fruit does not always take place in October or November, the time being very variable. La Quintinye remarked this as far back as 1690. In his "Instructions pour les Jardins Fruitières et Potagers" he tells us that this Pear "is not always accustomed to ripen at the end of October and the beginning of November, but sometimes even delays until December, to the great gratification of the curious." In our days this variety has become even later, as late even as the middle of January; and, according to M. Decaisne, we may in exceptional cases find ripe Bergamottes up to the middle of March. He says in his "Jardin Fruitière du Muséum," "Some Bergamotte Pears gathered from a tree in 1859 had this peculiarity, that whilst some of them were perfectly ripe in the middle of October, others ripened successively during the whole of the winter, the last being gathered in perfect condition in the middle of March, 1860. Thus we have a period of nearly five months between the ripening of the first and last gatherings." Such a prolonged period of ripening certainly deserves special mention, but it is too exceptional to look for its frequent repetition.

Bourre d'Amanlis.—*Syns.*—Hubard Pear, Kaisseuse Pear, Thiessoue Pear, Bœurré d'Amanlis, Wilhelmine, B. Delbart, B. Plomgastelle, B. Debart, B. Koussou, B. de Thiessé, B. d'Elbert B. d'Albret.

DESCRIPTION OF THE TREE.—Wood, very strong. Branches, pretty abundant, irregularly spread out, and usually twisted, flexible, greyish-red, thickly speckled, *de coussinets saillants, à longs méristhales*. Eye, of medium strength, oval, blunt, separated from the wood. Leaves, oval or elliptical, acuminate, with the edges strongly indented, the fruit-stalk being thick and somewhat short. Fertility, remarkable.

CULTURE.—This variety is extremely vigorous, and its growth is very rapid; it is grafted either on a free stock or a Quince, and always forms fine pyramids.

DESCRIPTION OF THE FRUIT.—Size, very large. Shape, turbinate, elongated, blunt, and swollen. Stalk, pretty short and thick, rarely curved, inserted obliquely in a shallow cavity, surmounted by a protuberance which is generally very marked. Eye large, half shut, only slightly developed, and nearly level with the top of the fruit. Skin, grass-greenish yellow, speckled, and is veined with tawny yellow, slightly tinged with brownish red on the side next to the sun. Flesh, whitish, *fine*, melting, gritty, and very juicy. Juice, excessively abundant, sharp, sweet, and pleasantly perfumed. Season, from the end of September to the end of October. Quality, first-class.

HISTORY.—We read what follows in a work on this Pear published in Paris in 1832: "This is a discovery of M. Van Mons, and it may be procured from M. Noisette in Paris, or from M. Cayeux, of Boulogne-sur-Mer." These lines, to which are appended the signature of M. Poiteau, the eminent botanist, were evidently written in perfect good faith, but in any case they contain a mistake which lasted up to 1858, when it was rectified, so to speak, at the very foot of the original tree from which this variety first sprang. In 1862 M. Eugène Forney, professor of arboriculture at Paris, pointed this error in the following terms: "Bœurré d'Amanlis.—This variety was originally grown at Amanlis, a small village near Rennes. M. Jamin, a well-known horticulturist, has lately proved that the parent tree, which is of enormous dimensions and not grafted, still exists in an orchard in this locality. The fruit was first sent to M. Noisette, the eminent horticulturist of Paris, by his brother, who was chief of the botanic garden at Nantes." The propagation of the Bœurré d'Amanlis goes back as far as the end of the last century. From Brittany it spread rapidly to Anjou, and then to Rouen, where it has been known since 1805 by the name of the Thiessé Pear, from the person who first grew it in that locality. It was

afterwards sold under the name of the Hubard Pear, the son-in-law of M. Thiessé, the first grower standing sponsor to it on the second occasion. From these two surnames improperly spelt have arisen many of the synonyms by which this Pear is known, as will be seen by referring to those given at the beginning of this article.

REMARKS.—Amongst the Pears which have been pronounced to be the same as the Bœurré d'Amanlis, there is one, Wilhelmine Pear, which was first thought to be a distinct variety. It ripened, we were told by several pomologists, in February or March, which, as may easily be conceived, rendered any relationship between the two Pears a matter of impossibility. The identity is proved in all our nurseries by their complete resemblance to each other, as well as by the simultaneous ripening of their fruit, the form of which presents no marked difference.—*Dictionnaire de Pomologie.*

Winter Strawberries.—Referring to a notice of Strawberries in December which recently appeared in THE GARDEN, allow me to offer a few remarks regarding their culture, which may not be without interest to some of our readers. It may seem rather out of place to write about winter Strawberries when our shelves are filled with spring ones; but to succeed well both crops must be kept in view from the first. Do not overcrop the plants; rather sacrifice a few berries than keep them too long in dry, warm quarters. Harden off gradually and plant out in good soil without disturbing the ball. Some recommend repotting; I have tried both ways, and find that they do best planted out. Little will be required during summer, except keeping them well watered in dry weather. If planted in rotation, they will succeed each other in autumn, leaving the latest out as long as they are safe from frost. After putting them into a size larger pot than that in which they were grown in spring, keep them in a close frame until established, then place them in any cool, airy house from which damp can be excluded. Although their flavour may not be so good as in spring and summer, still there are but few who will not appreciate a dish of Strawberries during the shooting season. R. CARTER, Wareley Park.

The Cordon system.—In noticing this, not unfavourably, "W." omits to mention the remarkable results obtained in Mr. Roger Leigh's garden, in Kent, and at Sir Henry Soudamores Stanhopes' in Herefordshire, notwithstanding the difficulties and small mistakes which always attend novelties of this kind. Mr. Sheppard, too, now of the Crawley Nurseries, obtained very good results from it. It is never fitted to replace the orchard system, but for certain definite ends in gardens it is admirable, such as for quickly covering high wall surfaces, growing a number of varieties in restricted space, early bearing, and the culture of choice winter Pears and the tenderer and finer Apples. Its advantages are not realised by all, because in most cases I have seen the simple training necessary is not carried out; the shoots are allowed to grow like Willows, or they are pinched off quite close, both ways being wrong, and absolutely destructive to the formation of a decent cordon.—J. H.

SHORT NOTES—FRUIT GARDEN.

Root-pruning.—Mr. J. E. Waite has sent us from Grange some fruit spurs, showing the benefits arising from root pruning. Rampant growing, barren trees have by that means been converted into fruitful ones. The trees are, he says, fully a month earlier than all others now, and covered with great fat opening buds.

Wyken Pippin.—No Apple here this season can compare with "Wyken Pippin." It is the exact size and colour of an Orange, and makes a dish, dressed with Fern fronds that may aptly be described as faultless. We keep it fresh and plump up till April. As soon as gathered (which should be late) we place it on the shelves, and wait until the sweating process is over. We then wrap each fruit in soft paper, pack carefully in boxes, and nail them up, which keeps them air tight.—R. GILBERT, Burghley.

GARDEN FLORA.

PLATE CCCXXIV.—THE DISAS.

No other terrestrial Orchid can compare in colour with *Disa grandiflora* when well cultivated; indeed, it is to be regretted that it was ever called an Orchid, seeing that the word too often frightens even good cultivators from growing it as an ordinary decorative plant for the greenhouse or conservatory, for which purpose it is well adapted. Although really an Orchid, and also a very beautiful one, it is as amenable to ordinary greenhouse cultivation as a herbaceous Calceolaria or a Pelargonium, and, when in bloom, more effective than either. *Disa grandiflora*—at home on Table Mountain, at the Cape of Good Hope—is thus spoken of by a traveller who has paid a visit to its habitat: "We crossed the Kloof, which is a spur of the mountain, the ocean below us, dotted with fishing boats, looking glorious in the early daylight, and ascended by Kastell Berg, passing on our way a large number of *Amarylhis Belladonna*, just throwing up their flower-spikes. About two hours and a quarter brought us to the plateau, in the rear of Table Mountain proper, and my aneroid barometer showed that we had attained an altitude of 2700 ft. We had not proceeded 300 ft. before we perceived the bright red spikes of *Disa ferruginea*, and almost at the same moment that charming flower *Herschelia coelestis*, called here the *Blus Disa*, met our view. Less than a quarter of a mile brought us amongst quantities of *Disa grandiflora*, and well may Harvey term it 'the pride of Table Mountain,' for it would be difficult to find a handsomer or showier flower, and when you see a dozen or fifteen of its brilliantly coloured blooms together, it is a sight not readily to be forgotten. The intensity of colour exceeds that of any wild flower I have ever seen—the Snow Plant of California with its rich colour, contrasting with the spotless snow, excepted. *Disa grandiflora* grows most plentifully on the sides of the narrow watercourses which intersect the plateau, the sides, as a rule, being nearly straight, although we saw numbers on the face of large rocks where water was trickling down. The soil it grows in is a black sandy peat, and it may almost be said to grow in the water, the soil being so wet; and as this is the driest month here, it is clear that the roots are always in wet soil, and, I believe, they never rest, as examination showed that they were pushing forth new growth. *Disa ferruginea* and *Herschelia coelestis* both like damp spots, but not so wet as *D. grandiflora*; these two species do not appear to grow in masses as *D. grandiflora* does."

Another traveller, also writing of *D. grandiflora*, says, "This very beautiful Orchid is always found growing on the margins of everlasting rivulets and ledges of waterfalls; its roots are always under water, and frequently for days together are entirely submerged. In June, July, and August"—corresponding to our December, January, and February—"they are frequently covered with snow and hail. In 1878 they were, to my knowledge, so covered twice. I have frequently found ice on the slopes of the Table Mountain 2000 ft. below the *Disa*'s haunts. The water on Table Mountain is cold, even on the hottest day in summer. The Table is frequently covered with cloud or mist, which frequently lasts four or five days, and at all such times the temperature is very low. In May, 1876, I was on the mountain for eight hours in a mist that came off the sea from the north-west; it was very, very cold. During our hottest months the Table is most frequently covered. At that season the cloud comes from the south-east with a very strong wind, and is even colder than in our cooler months.



IRIS GRANDIFLORA (VAR. SUPERBA J. BARRELL)

I have always found the Disas growing in Sphagnum, peat, and sand. I have been on Table Mountain in midsummer, but have never found it so hot as in Cape Town. I have every belief that the Disas would grow well out-of-doors in the south of England by the side of a running stream."

CULTURE AND POSITION.—A fact of striking import is the flowering of the *Belladonna Lily* at a much lower altitude than that of the *Disa grandiflora* is naturally found. This is very suggestive when we come to remember that this bulb is hardy with us, blooming at the foot of any sunny wall, and yet from very force of habit and professional traditions, we are apt to coddle the gorgeous wild flower, which in its native home is perfectly accustomed to cold mists for days together, varied now and then with snow and sleet. The fact that it has hitherto succeeded best in a cold house, or one from which frost merely is excluded, is fully established, and even cold pit or frame culture affords excellent results. Another fact is clear that even "at home" conditions vary very widely, since, as Harvey tells us, the scorching sun of lat. 33° succeeds the sleet and ice, as alluded to by another observer. Experience, not too pleasant sometimes, has taught me one or two facts worth the attention of beginners in *Disa* culture. In repotting never disturb the roots or break up the ball too minutely. I once did this, and ruined a couple of strong, healthy plants, with a dozen good growths on each. Another point is never to place a pan of water below the pot in which this *Disa* grows. All it seems to require is a layer of fibrous peat, loam, and Sphagnum Moss about 3 in. in thickness above the crocks. Instead of fine white sand, employ nodules of sandstone and charcoal the size of Hazelnuts. Some growers use horse manure and other manures in compost, but I am fully convinced that these are not all essential, although in the hands of a good cultivator they do no actual harm. An essential part of the cultural treatment is syringing at least twice daily during the growing season. A shelf near the glass seems to suit the plants best, even when grown in a shallow pit; this rule holds good, and an eastern exposure seems desirable with abundance of diffused sunlight. No other Orchid I know seems so anxious to thrust its flower-spikes up towards the side whence the sunlight comes as does this *Disa*. Even at the Cape we are told this tendency is observable.

Cultivators of this *Disa* long looked askance at Andrews' figure of *D. grandiflora* superba, as published in "Select Orchidaceous Plants." In that plate eight flowers are represented upon one spike, and as it appeared when growers generally only succeeded in obtaining four or five flowers upon a spike, its truthfulness was questioned. At Glasnevin and in other gardens, however, from five to nine flowers on a spike were not unusual, but it was reserved for Chatsworth, to bear off the palm in *Disa* culture, as we are informed by Mr. B. S. Williams, who at p. 100 of *THE GARDEN*, August 5, 1875, writes as follows: "There is now in bloom at Chatsworth the best plant of *Disa grandiflora* I ever saw. It has been grown in a cold Heath house, in which there has always been plenty of ventilation both night and day, except during frosty weather. The plant," he adds, "is worth a journey from London to Chatsworth to see. On one spike it has 12 large flowers, bright scarlet-crimson in colour, veined with pink. There is no doubt that this is the same variety as was figured some time ago in Warner's 'Select Orchids,' when it was stated to have had eight flowers upon it. This plant, quite lately small in size, has reached its present state in a very short time." From 7 to 9 flowers on a spike was quite

a common number on other plants at Chatsworth in July of the same year (*GARDEN*, July 3, 1875, p. 2).

At Hyde Park House, near Cork, a plant of *Disa grandiflora*, grown in a 12-in. pot, bore 19 flower-stems, on which, in the aggregate, were produced 54 flowers, and three other plants produced 66 flowers, or a total of 120 flowers on four plants. These plants were treated as follows: After flowering they are allowed a short, but not dry, rest; they are then repotted as soon as the young growths have made some progress. In the operation the roots are interfered with as little as may be, the outside of the ball being the only portion disturbed. Drainage is particularly cared for, and nearly fills one-third of the pots. The soil is composed of fibrous loam and peat, with a portion of charcoal and sand. The plants during their season of growth are abundantly supplied with water, but never fed with it from below. They are kept at the east end of an airy house, and always have plenty of air day and night, except during severe frost, throughout the whole period of growth.

The accompanying illustration, which affords some idea of the beauty of *Disa grandiflora* superba and its variety *D. Borelli*, was made from fresh flowers grown in Major Barton's garden at Straffan, Kildare, and sent to us by the gardener, Mr. F. Bedford, who is a very successful cultivator of these and other Orchids. We append Mr. Bedford's cultural practice, as also that of Mr. Culley, of Ferniehurst, near Leeds, and that of Mr. W. Young, of Purdy'sburn, near Belfast, who has grown enormous pans of *Disa grandiflora*, the flowers being both large and numerous. The plant is readily propagated by division or by seeds, which germinate freely on a wet, well drained peat and Sphagnum Moss.

—I repot my Disas in December, if needful, and place them in a cold house along with Heaths and other hard-wooded plants, first giving them a good soaking of water to settle the compost; afterwards they are kept fairly moist till they show signs of growing freely, when they receive water every day (foliage and roots) through a fine-rosed watering-pot. At the end of May they are shifted to a cold frame, but still watered freely every day till flowers begin to open, when they are moved to the greenhouse, in company with Fuchsias, &c., and similar plants. Here they receive just water enough to keep the Sphagnum alive. The compost which I find to suit them best is equal parts good fibrous peat and Sphagnum Moss, with a little charcoal broken to about the size of Walnuts. *D. Borelli* had twenty-seven flowers on it last year.—F. BEDFORD.

—The compost which I use for Disas is rough fibrous peat two parts, small portions of charcoal and broken pots, a quantity of sharp Bedfordshire sand, and a little horse manure from a spent Mushroom bed. These are all mixed thoroughly together. When potted the plants are placed at the coolest end of the Odontoglossum house, at a temperature of 45° in winter, and they are kept as cool as possible in summer and well shaded. Plenty of air is allowed to circulate about them, and when in full growth they are syringed twice a day, and at no time are they allowed to get dry at the root.—E. CULLEY.

—The compost which I use for our Disas is a mixture of rough fibry peat and loam in equal parts, to which is added a little charcoal or small crocks, the pot or pan I am going to use being at the same time well crocked. I grow them always in a common greenhouse on the front stage, always exposed to the sun, the aspect being south. I give them abundance of water winter and summer, as I find by experience that they

like it. I have them at present in 6-in. pots and in pans 20 in. in diameter, and all are making fine strong growths. My Disas require no heat beyond what will keep them from frost, and so to shade, they had none last year; but if a very fine, bright, hot summer should occur, I would give them a little shade during the middle of the day.—W. YOUNG.

KITCHEN GARDEN.

EARLY POTATOES.

DEFICIENCY in the matter of sunshine is a drawback to the forcing of very early Potatoes. The necessity of keeping Potatoes covered up with mats or other coverings for long periods of time during severe weather often acts prejudicially to both the quantity and quality of the crop; but there is no help for this so long as Potatoes are forced in manure pits. But the earliest crops need not necessarily be grown on a manure bed. Potatoes of excellent quality have been grown on a back shelf in pots fully exposed to the sunshine, where the fresh air trickles in when the ventilators are cautiously opened. There the Potato tops come away strongly, and of hard woody habit, able to stand alone till the tubers are approaching maturity. Anyone having a back shelf to spare in a Vinery or Peach house, where the night temperature at present does not exceed 50°, may start Potatoes, potting at once. The old Ash-put is still the best for early work, and the sets for forcing should be selected of good, even shape, be placed in a shallow box, crown upwards, under the greenhouse stage in a light position, where there is a little warmth and be syringed occasionally. At this season they will soon start, and as soon as the eyes have pushed, all but the strongest breaking out of the crown should be rubbed off. A day or so before they are ready for potting, some light rich soil should be placed in a warm situation to raise its temperature, and, when ready, prepare as many 8-in. pots as will fill the shelf, placing one piece of rough crock over the hole, then 2 in. of rough fragments of turf, filling the pots half full of the ordinary compost, which should be fresh and sweet sandy loam and leaf-mould, broken up well, but not sifted. Two tubers should be placed in each pot, and be covered 2 in. deep, and then placed on the shelf. It is better to let them occupy a position near the glass from the first, as it is important that they start away strongly. A Potato haulm that commences weakly seldom acquires that full solid growth of stem so essential to the production of a good crop.

I am convinced too many in their Potato culture do not pay sufficient attention, first, to the selection of the seed, and afterwards to the selection of the main stem. And in the growth of early Potatoes we want one, if that one be strong and robust. Anyone who watches the Potato diggers either in garden or field must soon notice the extreme irregularity of the crop, some roots producing double what others do. A good deal of this variation arises from lack of selection and preparation of seed. Therefore, holding these views, I need not say how important I consider this to be in the case of Potatoes grown in any way under glass.

Later on in the season, when every bit of shelf surface under glass is required for Strawberries, the next lot of Potatoes must come on in frames, and there will then be less danger of a long and severe frost, necessitating much covering up, except during the night. Light frames are better than brick pits, as the latter are often deep and unwieldy in character, and to have good crops of Potatoes they must be near the glass, exposed to all the sunlight possible. So long as the foliage does not touch the glass, and the frames are matted up on cold nights to prevent the ill effects of radiation, the nearer the tops are to the glass the better. An intelligent man, with an ingenious mind, will invent many ways of growing early Potatoes. As the days lengthen all that is required is a sunny site, and, if possible, a little roof

warmth, or bottom heat, and shelter at night. Much can, and has, been done without glass; although as glass is now cheap, more might be done with movable frames in the growth of not only Potatoes, but of other early vegetables. I have dug Potatoes in the open air in the middle of May from an early sunny border hooped over with a covering of mats sown together and drawn over every night. In another case I have known the same thing accomplished with straw covers that had been made by the men in bad weather in winter, when they could not work outside. Though successful Potato growing in this country is mainly a question of sunshine, yet we cannot always command the sunshine. And we can, if we like, take more pains with the seed, so far as the selection and preparation are concerned. And though this will not, in fact nothing can, make amends for a lack of sunshine, yet a healthy vigorous plant, rationally treated, is less susceptible to disease, and does its work better than when no thought or care is taken in the matter.

All the early Potatoes should now be placed in some light position, where the eyes may start gradually and become green as they gather strength. Such rationally prepared seed will by-and-by, if cared for, give good results. In the meantime all land intended for Potatoes should be either ridged up, or at least roughly dug, to let in the air. It is better not to over-mature land for Potatoes. Give only a moderate dressing now of farmyard or stable manure. The best manures for Potatoes are soot, lime, charcoal dust, wood ashes, and on dry land salt may be used sparingly. The best artificial manure is superphosphate. There is this year an abundant supply of Potatoes; indeed so abundant in Huntingdonshire are they that I hear they are being sold at 1s. per bushel, and it is thought many tons of excellent Potatoes will hardly find a market.

It is known to most gardeners, but not often acted on, that Potatoes kept over the summer and packed in layers mixed with earth, next autumn in a dark shed will produce a considerable crop of young tubers at Christmas that will realise a good price. They will be young Potatoes, and anything that looks fresh and white will sell then. I have had them of fairly good quality, though of course not equal to those produced later on in the season, grown in frames. E. HOBDAY.

SPRING SOWN ONIONS.

THE ground for these should be deeply trenched in the autumn, or as early in winter as possible. The trenches should be 2 ft. wide and from 2 ft. to 3 ft. deep, according to the depth of the soil. Plenty of manure ought to be put into the trenches, as the Onion is a gross feeding plant, and requires good feeding to ensure a heavy crop. If deeply trenched the manure should be put upon the second spit which is turned into the bottom of the trench; if not more than 2 ft. deep, then the manure should be put upon the first spit which is turned into the trench. The manure should not be too rotten, as when buried it has plenty of time to decay during the winter. The manure will induce the roots to go down to it, and in that way they will be out of the reach of hot dry weather in summer, whereas if the manure is only dug in on the top of the soil, the crop soon begins to feel the effect of dry weather, and watering has to be commenced to keep it growing until rain comes; under such circumstances the crop is sure to be inferior. In trenching the ground should be thrown into ridges, thus exposing a larger surface to the action of frost, which has the effect of pulverising the surface, and especially that of a stiff or heavy clay. Sometime before the seeds are sown, level down the ridges with a fork, and rake the ground level with a wooden rake, or long-toothed iron rake, until it becomes a fine mould. A dressing of salt may then be given, taking care to distribute it equally over the ground, for if too thick in one place and thin in another it will destroy the young seedlings. About $\frac{1}{2}$ in. in thickness will be found to be a very good dressing for Onions; it invigor-

ates the plants and retains moisture in the soil for a long time after being used. After being strewn over the ground it should be dug in with a fork, intimately mixing the salt with the soil as the digging proceeds. Thus applied the salt will destroy the eggs of the Onion maggot, and save the crop if properly mixed with the soil. It should be applied two or three weeks before the Onion seeds are sown, so as to have time to get dissolved. When the ground is required for sowing the seeds spread some rotten manure upon it, forking it in lightly and mixing it well with the soil, in order to give the young seedlings a good start. Manure from the pigeon loft or from the chicken yard is the best which can be had for Onions. This, however, must be used thinly, as it is very strong, and when too thick often causes failure. Some wood ashes or soot may also be dug into the surface before raking it fine, and the seeds should be sown upon a dry day. I generally choose ground for Onions on which the early crops of Celery have been growing. I level each trench as the Celery is dug, and as the crop before the Celery is generally Peas, for which the ground is heavily manured, the Onions get all they want in that way.

Sowing.—The seeds may be sown the last week in February or early in March. Firmly tread the ground with the feet before sowing, or roll it. Sow either broadcast upon beds 5 ft. wide, with paths 12 in. wide between them, or in rows from 9 in. to 12 in. apart. Soil from the paths may be spread over the beds to cover the seeds. Rake the surface with a fine-toothed iron rake, and cut the edges straight, when the beds will be finished. If sown in rows the ground must be made firm as before, raking the surface fine; then draw lines $\frac{1}{2}$ in. deep, and, as I have said, from 9 in. to 12 in. apart; sow the seed, covering it firmly with the back of a rake, when it may be trodden down level with the feet; then rake all evenly. If at hand, some wood ashes may be sown over the seeds before covering with the soil. Broadcast sown beds will require to be hand-weeded, or if grown upon a large scale, small hoes with short handles may be used. In market gardens every man uses a small hoe in each hand. He kneels upon both knees, on which there are leather kneecaps, and thins the plants from 6 in. to 7 in. as he proceeds with the weeding. If sown in rows, which I consider the best plan, the ground can be kept free of weeds by the use of the Dutch hoe. As soon as the plants are large enough thin them out to distances of 6 in. apart, when fine large bulbs, which will ripen and keep well after being harvested, will be the result. Pickling Onions should be sown thickly upon a bed, and thinned out from say 3 in. to 4 in. apart. When nearly full grown they should be covered over about 1 in. in thickness with the soil from the path to blanch them, which is one of the principal points in connection with choice Onions for pickling. If artificial manure is used, soot mixed with lime is one of the best which I have tried.

Varieties.—The following are the sorts which I have grown for several years, and find them to give satisfaction both with regard to heavy cropping and keeping qualities: the old Blood Red, White Globe, Danvers Yellow, White Spanish, Improved Reading, Strasburg, Deptford, Nuneham Park, and Covent Garden Pickling. Onions should be stored upon dry shelves or tied into bundles; if put in damp rooms they soon begin to grow, which destroys their keeping properties and also their flavour. If taken care of they will keep good up to the end of July. A dry room in which there is a brisk circulation of air is a good place in which to store them.

W. CHRISTISON.

The Rookery, Bromley Common.

Preservation of Cabbages in winter.

Nearly twenty-five years ago, being either in the northern part of New York State or somewhere on the Canadian side of the lakes, in the close of the fall, I forgot which, I noticed a man planting full-hearted, full-grown Cabbages, heart in the ground and root upmost. I asked what it meant, and was told it meant a good, sound-hearted Cab-

bage in the middle of winter. Although I spent after that time ten or twelve years in the Tropics, I never forgot my lesson in Cabbage planting, and when I returned to take up my abode in my native country, I commenced experiments in the same line, and by burying my Cabbages by laying their roots upmost and top on the level of the ground, tucking the leaves well under the top of the heart early in November, and then covering them up with soil from the trench between the rows, I have had as late as the end of March of the following year beautiful white, full-hearted Cabbages, as sweet as Nuts, and, to my taste, superior to the Cabbages fresh cut in summer, being entirely devoid of the strong taste disliked by so many. I have often used these Cabbages as salads mixed with Endive, Celery, and other winter salads, and my friends have been puzzled how I managed to give such salads. It is not easy to get the burial part properly done, or to preserve them from slugs and worms, but with proper care and attention it is as easy to have as sound-hearted a Cabbage on your table during any winter, mild or hard, as in the middle of summer. As a certain part of the outer leaves perish, a large-hearted Cabbage is best, as I found the burying in the earth took away the strong flavour. This last year I took my Cabbages from the field, the large Drumhead, and stored about 200, and have commenced using on this the last day of January Cabbages that I earthed in the first week in November. Luckily, after a thin coating of earth I put of salt and fine cinders a thin layer, and then earthed over fully and have avoided slugs and worms. They must be cooked within 48 hours after unearthing.—K. B.

[We have received an interesting parcel of these Cabbages, which are preserved in the ground in a way well worthy of attention. Had we such winters as this there would probably be no need to direct attention to the subject, but inasmuch as during several past winters it was no uncommon thing for all the Cabbage tribe to be utterly destroyed, the plan is well worth carrying out. As we can never tell when a mild winter may turn severe, it might be well for those who have a good portion of such produce to protect part of it so as every year to secure themselves from loss. The large and firm heads which are buried deeply in the soil, as described by our correspondent, lose their outer leaves, but turn out fresh and good.]

Early Lettuces under glass.—We usually plant some of the autumn-sown Lettuce (Black-seeded Brown Cos) as an intermediate crop in Potato frames, as by selecting the largest plants they are fit to tie up for blanching before the Potatoes make much top growth. And during the spring months, when cold winds prevail, these little Lettuces grown quickly without check are far more crisp and succulent than those that have stood the winter outside. A row may also be put close to the base of walls on which Peach and Apricot trees are being protected. Here, with only the protection of a glass coping, they will make a useful succession to those in pits.—J. G. Linton.

SHORT NOTES—KITCHEN GARDEN.

Autumn-planted Potatoes.—I can, from some twelve to fourteen years' practice, recommend autumn planting, but not the depth mentioned by "G. L. M." I invariably plant 6 in. deep, and allow the rows to be 6 ft. apart. Early Peas are sown between the Potatoes, the yield of which I have always found to be more abundant than that of spring-planted tubers. I usually plant about the second or third week in November, and rarely have a break in the rows.—J. C. MUNDELL, Moor Park.

Carters' Incomparable Dwarf Celery.—We have in this variety a Celery that is hardy, solid, crisp and delicious in flavour. Being dwarf, little earthing is needed, and the rows may be much closer together than in the case of larger sorts. It is the celery for the million. I have this year grown it in company with Major Clark's and "Leicester Red," and while the two latter have both bolted, Carter's shows no sign of doing so.—R. GILBERT, Burghley.

Mushrooms.—Can anyone interested in Mushroom growing inform me how to destroy small flies in Mushroom houses without affecting the crops? Also the cause of Mushrooms turning brown on the tops?—J. D.

INSECTICIDES—NEW AND OLD.

As regards insect pests, we may as well disabuse ourselves at the outset of the idea that thorough extirpation is within the range of possibility, either in collections of plants or in the open air, at least for any lengthened period of time. No known material or combination of substances has been as yet brought forward that fulfils the desired end, and all that we can hope for is a something that will keep them in check, and thus prevent our plants and fruits from being materially injured by them. We can recollect in the good old days merely Tobacco and Tobacco water, Quassia, and sulphur vivum; these formed the weapons of offence and defence against all comers belonging to the insect race, and plants generally were as clean then as now, and at how much less cost! With these were attacked green and black aphides, red spider; but scale was then, as now, only routed by sponging and rubbing. There seems to be no known material that will remove scale from leaves and soft shoots, owing to its adherent properties, and yet not injure the plant; therefore, that being the case, clean water is as good as any mixture known for getting rid of scale on the generality of plants. We also had thorough faith in copious syringing with clean water, the plants when possible being held over a large tub, the water used having a temperature of 100° Fahr. This douche bath dissolved the gummy envelopes and attachments of the eggs, and, combined with the suddenness of the attack, compelled these and the insects to loosen their hold on the plants. Red spider is more troublesome to overcome than some other kinds, but even it will not survive a short course of the warm water cure, varied with slight sulphur dustings.

Mealy bug on Vines.—The greatest pest of to-day is perhaps mealy bug, the ways of which are so insidious, and its powers of reproduction so immense. In permanent plants the case is difficult, but may be met in a great measure by thorough cleanliness in all parts of the house and fittings, the removal of the upper crust in the case of Vines, and painting over three or four times in the rest period with a solution of Gishurst Compound, in proportion of from 4 oz. to 6 oz. to the gallon of water, or by the old suffocating method, with clay, cow manure, sulphur, and soft soap. In either case the rough rind, which affords so many hiding-places, must be stripped off and burnt directly. There are some who say that the barking process is detrimental to the Vine; that is merely an unsupported assertion, not in any way borne out by results, for as fine Grapes have been grown by gardeners who have persistently practised it as have been grown by the opponents of the practice. At any rate those who are plagued with mealy bug are constrained to take the outer bark away, or else to see their endeavours result in failure. Were the plants exposed to the vicissitudes of an out-of-door climate, the practice would seem to be less desirable, although we should not forget Cork and Cinchona trees. These are robbed of a good portion of their bark annually with no apparent evil results. In spite of all washings and winter dressing, a sharp eye is needed to detect stray insects on sunny days during the rest of the year. Avoid all mineral oils at all times; their name is Danger; but methylated alcohol may be used with a camel's-hair pencil with safety in crevices and hiding-places.

Pines are subject to the attacks of mealy bug and brown and white scale. To get rid of either of these insects I have found nothing equal to putting the infested plants into a pit or frame made up of the rankest stable manure. They must not be plunged therein, nor should the foliage touch the manure at all. When the heat is about 100°, and the ammonia therefore most abundantly present, is the proper time to insert the plants in the frame. Confinement for twenty-four hours in this evil-smelling, steamy atmosphere is a certain cure, care being taken that the heat does not attain to more than 100°. Syringing afterwards with clean warm water will then complete the cleaning.

American blight.—It is much to be doubted if we are yet in possession of any means to rid us of American blight on the Apple. Owing to our not being able to strip off the smooth, living bark of the young parts of the tree, we cannot get at the eggs that lie buried within it; nor can any means be employed that will reach them, and at the same time leave the rind uninjured. Summer dressing with Quassia boiled in water, or weak solution of Gishurst Compound, will kill many insects, besides rendering their food distasteful; but still the process of egg production goes on seemingly unabated, and the same round of work must be done the next season. Therefore do not part with your money too freely for the numerous panaceas offered; rather put your faith in plenty of warm water in the way of copious syringings, and in the use of the simpler agents that are seldom dangerous.

SYLVESTRIS.

WORMS IN GARDENS.

I SHOULD like, if I may be allowed, to reply to "London Stone's" last letter. I am sorry he has decided not to read any more of Mr. Darwin's books, as they are so full of information and, to most persons, of interest. As to the burial of the stones in the stony field, though the washings from higher land may have assisted to bury stones on the lower, those on the upper part would have been left all the more exposed; and this is only one of many instances quoted by Mr. Darwin, others being on level ground. Though I admit that Mr. Darwin does not allude to the prominent part which decayed vegetation plays in causing additions to the soil, yet stones half the size of a child's head could hardly be buried in thirty years in poor soil by the accumulation of decayed grass. "London Stone" asks, "How is it that the soil is not honeycombed by the removed of the enormous quantities of mould with which they are credited?" The answer to this question is that the old burrows collapse with the action of rain after dry weather, causing the earth to swell. It is by the constant action of the worms turning up soil, and thereby slightly raising the surface, and the frequent closing of their burrows by the earth falling in, which causes stones, &c., to gradually become buried. No doubt antiquities in other countries are often buried by an accumulation of dust or sand; but in England there is seldom enough dust to assist materially in covering remains of buildings, except near some wide roads. Now even 100 years ago England must have been much less dusty than it is at present, for then there were fewer roads, the fields were less well drained, and the amount of land covered with hedges and woods was much greater. As to worms not living in sterile land, soil of that description is not favourable to them; it is probably too dry and hard for them to work in, and they would be unable to obtain food. No one wishes to suggest that worms work for purely philanthropic reasons; but that they do inhabit poor soil cannot be doubted by any one who has seen the number of castings which may generally be found on commons and downs. It is a pity that "London Stone" can only obtain "that reprehensible breed which burrows into good fat soil, and turneth it out poor; yea, very poor," instead of that which Mr. Darwin alludes to, when in the conclusion of his book he says, "Worms prepare the ground in an excellent manner for the growth of fibrous-rooted plants and seedlings of all kinds. They periodically expose the mould to the air, and sift it so that no stones larger than the particles which they can swallow are left in it. They mingle the whole intimately together, like a gardener who prepares soil for his choicest plants. In this state it is well fitted to retain moisture, and to absorb all soluble substances, as well as for the process of nitrification. The bones of dead animals, the harder parts of insects, the shells of land molluscs, leaves, twigs, &c., are before long all buried beneath the accumulated castings of worms, and are thus brought in a more or less decayed state within reach of the roots of plants." "The leaves which are dragged into the burrows as food, after being

torn into the finest shreds, partially digested, and saturated with the intestinal and urinary secretions, are commingled with much earth. This earth forms the dark-coloured, rich humus which almost everywhere covers the surface of the land with fairly well-defined layer or mantle." G. S. S.

FLOWER GARDEN.

GOLD-LACED POLYANTHUSES.

I HAVE read very carefully the list and descriptions of gold-laced Polyanthuses given in THE GARDEN of January 28 by "Exile," and I must say that I differ somewhat from him. He does not say whether Pearson's Alexander is lost or not. The prevailing opinion here is that it has gone to that bourne whence there is no returning. Beauty of England (Maud) is stated to be lost, and that the one sold for it is not true. Well, there is a doubt, but upon what foundation does it rest? An old grower, perhaps the oldest in this district, has what he declares to be the Simon Pure. Now it is a recognised fact (by all who know the man) that at one time he was in possession of both the above named Polyanthuses. One was either lost or sold from his collection; the remaining one he declares to be the Beauty of England. The doubt may, perhaps, be set at rest at the next Auricula and Polyanthus show. Cheshire Favourite is dismissed with the few words "fine dark variety." Can a better be found from a florist's point of view, taking point for point? It does not bear so large a truss as either Exile or Lancashire Hero, but one gets that which is lacking in both, viz., neatness or refinement. An old grower told me about three months ago that the Exile now being sold as such is not Crownshaw's, that the true one, in short, is lost. Perhaps "Exile" will say if this is so or not. Black Prince (Faulkner) is stated to be a comparatively modern flower "with very dark ground and dark gold lacing." In Hogg's treatise, published in 1839, he says, "Mason's Black Prince and Turner's Marquis of Titchfield lately raised from seed are both fine flowers." If the descriptions of both "Exile" and Hogg refer to the plants grown here as Black Prince, it is now used only as a border flower, and will be found in very few florists' gardens. "Pitt-head (Collins) is a fine variety if existing." We have a variety here pronounced "Pitstead" which is only grown as a border flower. President (Hilton) is dismissed with the few words; "red ground, good lacing and truss." It has often been entered in competition and won when it had Lord Lincoln and Buck's George IV. to contend against; its defect, if such it may be called, is that it has got a good constitution, and makes offsets too freely, so that its price is kept low. Kingfisher Addis may be lost, but we still have Buck's George IV. left. Listen to what "Exile" says of it: "Fine red ground, extra quality, scarce." Had "Exile" been at the Manchester Exhibition in 1880 and seen it as it is often seen here, its excellences would not have been so lightly passed over. In addition to "Exile's" list I may say that Tantararara (Fillingham) appeared in Hogg's list of 1839, and is now in existence. There are now a number of seedlings that will hold their own on the exhibition table. Mr. Beswick, of Middleton, has several, one of which was in his pan of six in 1881, and was awarded first prize. Mr. T. Mellor has another or two, one of which I have seen, and when it is exhibited some of the old varieties will have to give place to it. Surely Dame Nature has not yet given us all her best gifts in the way of Polyanthuses. W. PRESCOTT.

Moston.

Gold-laced Polyanthuses.—If it is refreshing to an old florist like "Exile" (p. 63) to find renewed interest being taken in these good old plants, it must be still more so to those anxious to learn, and who cannot count so many years' experience as fifty. I am, from this point of view, grateful for the review of so many old favourites, and would only hope that such really fine flowers as Crownshaw's Invincible, Addis's Kingfisher, &c., may not really, as "Exile" surmises, be wholly lost. I have many hundred seedlings, and at present some very promising ones, from Exile, the best among the black grounds, as well as from Lancer among the reds but to find anything really good is certainly the exception; nevertheless, I intend hybridising and persevering.—W. J. M., *Clonmel*.

THE PURPLE SCABIOUS.

(SCABIOSA ATROPURPUREA.)

In the whole range of hardy biennial plants, few are more desirable, more useful, or prettier



Scabiosa atropurpurea.

than this Scabious, which for two or three centuries has been a favourite object of culture in English gardens. Common as it may be, it is, however, not sufficiently known, many fond of flowers never even having seen it. To these we recommend it as a plant that will not fail to give satisfaction, both as regards showiness and length of time during which it lasts in bloom, which is from June to October, and what is more it will flower all through the winter if put through the necessary course of treatment. The typical plant grows about 3 ft. high, but there is now a dwarf variety (nana) that scarcely exceeds 1 ft.; and this to some would be the most desirable, as it is neater and more compact. The normal colour is a deep rich maroon-crimson, but

there is a pure white kind; another variety, with deep purple flowers margined with white; and still another (striata), with streaked and spotted flowers. The variety *foliis aureis* has yellow foliage, and is very distinct. The flowers have a sweet musky odour, and are peculiarly adapted for cutting purposes. Being biennials, they require to be raised annually from seeds, which should be sown in the reserve border in March or April in good soil, and when large enough the seedlings should be well thinned. In autumn they may be transplanted to their permanent places in the borders where they are intended to flower. Thus treated, they will become strong before winter sets in, and will flower early the following summer, and produce an abundance of seeds. By sowing under glass earlier in the year they will flower the same year. The dwarf Scabious is now used for pot culture in winter, for which purpose the seed is sown in summer, and the plants grown strongly for winter flowering. It is found to be one of the most useful of all plants for furnishing cut blooms. W. G.

HARDY BORDER CARNATIONS.

It seems a strange thing to be talking about hardy border Carnations when one reflects that the plant itself—the wild plant, we mean—is a hardy mountaineer, and lives on exposed old walls as happily as the Wallflower; but the efforts of the florist to get something supremely fine and good in form and regular have led us to this point, that if one asks for handsome and vigorous kinds to grow in the open air, the chances are that one may not obtain them. Anybody, however, who can see a hole through a ladder must see clearly that cultivating this beautiful plant from the point of view of the hard-shell florist will never make it anything but a hole-and-corner triumph. It has been tried long enough now, and, as regards affecting the general body of the public, it is a complete failure. The hard-shell florist we dearly love, and would like to keep him preserved as long as possible, with all his rules and all his paraphernalia, and all his flowers too; we would even like to see him multiplied fivefold, because he is often a very good fellow, extremely clever, and, more than all, gives us beautiful things in their way. But the nurserymen of England have a bigger task then looking after him; and, moreover, he can generally prettify well look after himself. What they should do is to give the public—the great number of persons who would love these flowers if they could grow them without going through study or training, which may be termed academical, in the attempt to master all the secrets of the craft—without, we say, tweezers, nostrums, or secrets, they should give us bold and lovely flowers, which will grow well and freely in all parts of the land, and, if possible, improve them so as to extend the period of flowering. There is not so much to be done in this way, because we have observed that well-grown beds of Carnations in severe summers have lasted as long a time in bloom as certain races of bedding plants. We feel certain that when once the attention of our nurserymen is specially directed to this splendid race of plants from the point of view of the public and the cultivator, they will really do something to improve matters. They will, we expect, not only give us a fine range of vigorous border kinds as they are called, but probably also furnish us with varieties of different heights and sturdiness. We have been making inquiries from Mr. T. S. Ware, as to what progress he is making in this direction, and he sends us the following list of hardy or border Carnations and Picotees, viz.: Auctioneer, deep magenta, clove scented; Beauty, scarlet flake; Charles L., yellow, barred with deep rose; Duke of Wellington, intense bright scarlet; Fire-vent, salmon scarlet; Gloire de Nancy, pure white, very large; Helen, creamy white, spotted and flaked with rose; Ingoldsby, salmon pink; Lord Chelmsford, rose flake; Lucretia, yellow, red edge; Lucy, white, spotted with pink; Nigger, dark

crimson, clove-scented; Purple Clove, rich deep purple; Redbraes, red-edged Picotee, very free; Red King, light rose, with red edge; Triumphant, red-edged Picotee; Utility, pink self; Vivid, crimson scarlet; White Clove, pure white, very sweet; and Zulu, white, edged and striped with blood-red. There is only one other remark we would like to make on the subject, and that is in consequence of having conceded so much to the florist; the form of a well-grown Clove or other bold Carnation in the open air is better than any flattened-out and formal circular flower. Of course the hard-shell florist will put up his hands in horror at the notion; but it is as true as truth can be, and the wider it is known the better. We cannot concede that it is even a matter of taste, because the arbiter in such a case is the artist, or the general body of artists, who study form in all its phases, and really get to know that in which fine form consists.—*Field*.

Tricolor Pelargoniums and Viola Cornuta.—These associate well together. The Pelargoniums I like to have spring struck. We are striking ours now on shelves at the back of a forcing house. The Violas may be either obtained from seeds sown in autumn or cuttings planted at the same time, or by dividing the plants in spring, whichever way is most convenient. The tricolor Pelargoniums should be planted rather thinner than would be desirable if they occupied the bed alone, but still sufficiently thick to show a good breadth of foliage above the Violas. The latter should be planted among the Pelargoniums to form a thick base or groundwork. The scarlet flowers must be picked off as fast as they show themselves. The beds must be well prepared and liberally manured, but sand manure should not be used. This mixture is very pleasing, either in a large or small mass, but few people know how effective it is in the bulk, as usually it is looked upon as only fit for a miniature group.—E. HOBDAV.

Hollyhocks from seed.—The fungus to which Hollyhocks have fallen a prey of late years has driven them out of many gardens, so far at least as regards named varieties. Good double flowers can, however, be obtained from seeds, and though seedlings do not escape the fungus any more than plants raised from cuttings, yet they are more vigorous in constitution and are better able to battle with disease than plants raised from cuttings or grafting. Where there is a forcing house at work early in the year Hollyhocks may be treated as annuals; if the seeds are sown about the first week in February in a temperature of 60°, kept near the glass, and the young plants potted off, as soon as large enough to handle, into 3 in. pots, and grown on with as much care as is commonly given to bedding plants, the majority will blossom the same summer and autumn, and will probably escape the disease even in situations where they are generally attacked by it. The best way to guard the plants from disease is to plant only in well-prepared land, and to mulch heavily and water when dry weather sets.—E. HOBDAV.

Scolopendrium Kelwayi (pp. 59 & 92).—Mr. Webster must not take Mr. Clarke's note as a final one. S. Kelwayi is the same as S. Coolingi, and I believe S. Morgani is also the same. It is a Fern which has been known for many years at Sale, near Manchester, and of which fine plants may be bought for eighteenpence, any market day in our flower market, from country people. When Mr. Kelway attended our summer flower show, in 1881, with his fine Pyrethrums, I took a frond of this old stager to him, and he at once identified it as his namesake. On asking how then it came to be named Kelwayi, and to have been brought out as a new Fern he said that he never quite knew how he came by it. That it was his collection, and nobody knew about it, and seeing its merit he sent it to the Horticultural Society, and there it obtained a certificate and a name. The only merit Mr. Kelway claimed was that he had discovered how to propagate it successfully, and, indeed, as he has sold it by the thousand and this has evidently been a great discovery. I believe the proper name for

this Fern is Cooling! (see Lowe's "Our Native Ferns," figure 744). But here it is stated as having only been purchased by Mr. Cooling, and about to be distributed, and as that was in 1876, I believe, it was even then a common Fern in Lancashire.—BROCKHURST, *Didsbury*.

Stocks.—Although there is yet ample time for a severe taste of hard weather we may well hope that no such visitation will come this winter, and that many things usually killed or crippled in hard winters will this season be saved to us in health. Of these Stocks are amongst the chief favourites, though generally too tender to withstand a severe winter in the open, yet when saved are so beautiful and so sweet as to rank amongst the most favoured of garden flowers. It is too probable that owing to the losses inflicted upon Stocks during preceding winters, very few comparatively of the old winter kinds are now being grown. A tender season or two is needed, not only to enable seed crops to be grown, but also to ensure confidence. There is no more brilliant garden ornament in May than a grand spike of the old scarlet Brompton Stock. It is a flower which obtains admiration from high and low. Unfortunately owing to its robust growth the Brompton, as a rule, suffers most from frost, and plants in the open if robust, and such as would carry in the following season noble spikes of bloom, are those which suffer most injury. To be prepared for contingencies it is wise to plant some at the foot of a south wall or under the shelter of a house or a dense hedge or shrubbery, for even if these will not produce the finest blooms they suffice to keep up the stock from year to year. I notice the Queen Stocks are looking remarkably well now. It would indeed be a misfortune if after having so far been brought safely through the winter they should suffer. Should no harm come we ought during the coming summer to see all winter Stocks throwing very fine spikes and heads of bloom and be unusually handsome. In many gardens East Lothian Stocks have stood very well, and given an intermittent supply of bloom. The single ones should be well cared for, as they will produce good seed.—A. D.

Ranunculus culture.—"W. J. M." does well to direct attention to the Ranunculus. At one of our autumn shows last year Mr. Barlow exhibited two stands of these old-fashioned flowers, which excited great interest from their exceeding beauty. I thought surely these were the survivors of the old florists' strains, which were cultivated as show flowers early in the present century. On applying to Mr. Barlow, he informed me that the blooms he exhibited were from imported roots of the French and Persian varieties, so that it will be easy for us all to obtain and grow them. But the query suggests itself, do any of the old show sorts survive, and can anybody tell us about them? Mr. Tyso, of Wallingford, appears to have been a great grower of the Ranunculus thirty years ago. If he still lives, he could probably tell us a good deal about the old varieties. I have before me a list of the sorts grown by Mr. Tyso, and they appear to have been very choice and beautiful. The following are a few of the sorts: Apollo, dark red; Beauty of Suffolk, white, rose-edged; Duke of Bedford, crimson; Herald, white, crimson-edged; Mrs. Neilson, white-edged; Oressa, white, rose-striped, &c. The proper season for planting the Ranunculus is the end of February, so the time is now opportune, and if anyone can help us with information it can be acted upon.—BROCKHURST, *Didsbury*.

Wallflowers and Anemones.—Looking through the recently published book containing the collected contributions of the late Miss Hope, of Wardle Lodge, to the horticultural press, I find mentioned the small double yellow Wallflower, which, she remarks, "flowers for ten months. It expanded the first week in February this year (1874), and is invaluable." This Wallflower is one of the many interesting plants given to me by Miss Hope, and valued both as a souvenir of that excellent lady, and for the intrinsic merits of the plant. It is now in full bloom in several positions,

and very attractive. It has an agreeable fragrance, not unlike the scent of Violets; in fact, the description which accompanied it was, double yellow Violet-scented Wallflower. Miss Hope first received it from the Rev. Harper Crewe. I send you a few blossoms to verify the description of this very desirable Wallflower. I am also tempted to add a few blossoms of *Anemone fulgens* gathered from a bed in the open ground, now covered with the brilliant blooms of that charming plant; their vigour and profusion is quite extraordinary for this period of the year. I likewise add *Anemone blanda*, which is also susceptible to the season's influence, and now presents in its profusion of flowers a mass of the brightest blue.—WILLIAM INGRAM, *Belvoir*. [See p. 110.]

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

AN important jar of oriental porcelain, with red and gold ornament on warm white, holds large boughs of *Berberis Aquifolium*, the leaves all shades of red, from nearly scarlet to a dull powdery purple, the flowers already showing yellow; the stalks have to be tied together, as the boughs are top-heavy. Well chosen pieces of this alone make a handsome foliage decoration. On a drawing-room table a bunch of *Heliotropium* with leaves of *Cineraria maritima* is well displayed against an ebony cabinet; the same flowers and leaves make a good dress bouquet worn with black satin or velvet, the *Heliotropium* of the light and dark shades, and whole tips of the silvery foliage. Leaves of this kind of texture and colouring are suitable for grouping with all purple and lilac flowers, colours that with ordinary shades of green are difficult to handle decoratively. Nature gives a good example in the softly harmonised colouring of the leaves and flowers of lavender. A cloister-like passage from house to garden, whose wide-arched openings are glazed in winter, has under each a bed of Cocoa fibre 2 ft. wide, enclosed with wood-work designed with mouldings suited to the masonry for plunging ornamental winter plants in pots. The last bed returns at the end, and encloses a piece of sculpture, at whose foot is a group of *Acanthus latifolius*, a long-lasting house plant. Some of these *Acanthus* were placed in November, 1880, and have not been moved since; they have flowered and ripened seed. The rest of this bed is a mass of the green *Aspidistra lurida*, most of which have also been in position since November, 1880; there is no more enduring house plant. The centre bed is filled with *Arums*, *Solomon's Seal*, pale-coloured *Polyanthus Narcissus*, and *Lily of the Valley*. The third with *Spiræa japonica* and *Primula denticulata* and *Sieboldi*, the latter white and shades of lilac, avoiding the magenta colourings. The beds are all surfaced with fresh Moss.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Amarantus.—Several varieties of *Amarantus* are extremely effective in the summer flower garden, but on this occasion I shall only allude to two, viz., *A. caudatus* (Love-lies-bleeding) and *A. hypochondriacus* (Prince's Feather). The latter in good soil grows 5 ft. high and produces its erect plumbeous flowers in great profusion. Given plenty of space for full development, this kind makes a strikingly effective bed; but perhaps the best of all positions for it is as a dot plant in large basket beds. We have also used it alternately with *Humea elegans*, the light feathery flower-stems of which show off to the greatest advantage the more formal and stiff plumes of the *Amarantus*. *A. caudatus*, as its name implies, produces long drooping racemes of flowers frequently 30 in. in length; under good cultivation the plant will grow 4 ft. high and erect, but the heavy inflorescence renders it necessary to keep it tied to supports. Treated in this manner it makes an excellent front or outer line to large

beds of *Cannas*, and is unequalled for basket-bed planting, near the outer edge of course, in order that the long racemes of flowers may drop over the sides, and when thus used no supports are needed. Seeds sown in warmth any time during March, and the young plants pricked off into small pots two or three together as soon as they can be handled will make large plants by the middle of May, at which time they may safely be transferred to the open ground.

Roses and climbers.—The mild winter puzzles one to know what to do with Roses, for the wood is as succulent as it was in September last, and new shoots are several inches long. Such untimely growth must, to say the least, injuriously affect the future well-being of the plants. If pruned now, the buds as soon as started might be crippled by sharp frost, and if left to grow as they now are doing, they must of necessity be constitutionally weakened. In such a dilemma it is best of two evils to choose the lesser, and this, I think, would be to prune forthwith, and also closer than usual, i.e., to the lowest prominent buds which, as a matter of course, will be the latest to start, and may consequently escape injury from frost. The mulching should still be left on the beds. Newly-planted standard Roses should be tied to supports, and also mulched. The weather and state of the wood are this season both in favour of late planting, so that any Roses yet to be planted may be expected to do as well as those put in in November. Prune and nail, or tie in climbing Roses, Clematises, Wistarias, Virginian Creepers, and all other deciduous climbers. If the principal shoots are well secured to the walls, wires, or trellis at this season, they will give but little trouble all the summer, and may with greater certainty of safety be left to grow somewhat loosely from the wall or trellis, an infinitely better plan than that of keeping the young growths closely tied in. Ivy on buildings should be trimmed up before the plants start into new growth. Such annual trimming is necessary to ensure a bright green surface of foliage in summer, and equally so to prevent vermin effecting a lodgment in the Ivy. Similar remarks are applicable to tanks and edgings of Ivy; the latter soon get out of form, and become objectionable unless they are trimmed up twice a year at least.

Fernery and rock garden.—If other work is pretty well advanced attention may now be directed to a general overhaul of the hardy fernery and rock garden—both departments, that, because they can be neglected without seriously injurious consequences, are, as it were, too frequently left to take care of themselves. If the Ferns are at all overcrowded a general re-arrangement and extension of the fernery may take place, the present being a very good time for moving the plants; others will be benefited by being given a top-dressing of fresh peat or light loam. Dead fronds, Couch Grass, and other weeds should be forked out, and bare spaces furnished with Mossy Stonecrops, the tuft-growing wood Mosses, and clumps of wild Hyacinths, Scillas, Daffodils, Snowdrops, Wood Anemones, and Primroses. The addition of these hardy wild flowers produces a natural effect which is desirable, and the flowering kinds for the most part bloom at a time when deciduous or herbaceous Ferns are destitute of fronds, an additional reason for using them in such a connection. Much the same attention is required in the rock garden; there should first be a thorough clearing out of weeds, and then every plant should be well firmed in its place, and, if needs be, fresh soil given. Strong growing kinds should be prevented from encroaching on weaker ones by cutting away any portions that are likely to do so, and any spare plants so obtained can be utilised for filling up vacancies, or for furnishing any new addition that may be made to the rockwork.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Utricularia montana.—In every garden where there is the convenience of a warm stove and a disposition to cultivate something beyond

the commonest plants this *Utricularia* should have a place. Its handsome and singular flowers, and its Orchid-like habit of growth render it doubly attractive. It is one of the best of small-growing basket plants, requiring treatment as to soil, heat, and moisture similar to other West Indian subjects. It thrives well in a rustic wood basket in a mixture of peat, Sphagnum, and potsherds, keeping the collar well up above the surface of the soil. Its white, yellow blotched flowers are produced freely, and are very pretty.

Chrysanthemums.—Where the propagation of these plants is not done before the close of the year it will be well to at once put in a sufficient stock of cuttings, which will root if kept moderately close under a propagating glass in a little warmth, or even in a greenhouse, only the rooting process will be longer in the latter. Cuttings that were put in before Christmas should, as soon as struck, have enough air to prevent their being at all drawn. With a selection that includes the earliest and latest bloomers, as well as those that come in at the usual season, Chrysanthemum flowers may be had from September to the middle of January. In addition to the Japanese varieties, which are greatly liked by those who object to the formality of the show kinds, there are a number of free flowering sorts, of which the dark crimson *Julie Lagravère* and the bluish coloured *Hermine* may be named as examples that are much more useful than the largest flowers.

Roses.—Where Roses have to be forced along with a miscellaneous collection of other plants they cannot be expected to succeed nearly so well as when accommodated by themselves, and where such shifts have to be made there will always be a difficulty in keeping up a continuous supply of flowers through the winter not experienced when they have a house to themselves. The Rose under natural conditions requires plenty of air to keep it in health, but when forced the foliage cannot bear the admission of external air to an extent that most other things require without its leaves continually becoming a prey to mould. Where mixed forcing is carried on, and Roses form a part, the air given should be confined to admission at the roof ventilators, and only in small quantities, at the same time giving the plants plenty of light. In forcing Roses, especially the Tea varieties, the quantity of flowers produced will always be dependent on the strength the plants have in them; consequently from the time of their introduction to heat they should be regularly supplied with manure in some form, giving it either in the shape of liquid or in a solid state applied to the surface to be washed down to the roots in the ordinary process of watering. The Tea varieties are much the most under the influence of such feeding as here described, for so long as there is enough strength in them they at once start into fresh growth after one or two crops of flowers have been produced, which growth will bloom if not too weak. Plants of the Tea kinds that were put in heat in the autumn, and have been at work ever since, will now require a rest. Assuming that they are grown in pots, they should be accommodated in a house or pit where they can be kept moderately close and not subjected to cold draughts or frosts for upon their being well treated now in this way depends their yearly gaining strength and ability to give an increased amount of bloom the ensuing winter. They should be kept as free from mildew and insects all through the spring and summer as they have been during the time of forcing. Another lot of plants ought to be put in to take their place, and if strong and in good condition, with fair treatment they will yield a succession of flowers that will keep on until the spring is far advanced. In Rose forcing during March and April a good deal of forethought is required in firing. The sun by that time gets powerful, and if the fire is not stopped early in the morning whenever there is a likelihood of bright weather, the temperature runs up so as to necessitate the admission of much more air than the tender foliage will bear; it is better when such occurs to let the heat rise even to 85° or 90° than to let in cold

draughts on the plants. The use of thin shading in an emergency of this kind is preferable. Hybrid Perpetuals that have been prepared by a season or more's growth in pots may now be put in heat, and if not hurried will give a much better return than if started earlier. Even plants that were potted up in autumn from the open ground will yield a moderate quantity of flowers; but where no further preparation has been given than this, unless allowed to come on with little, if any, above a greenhouse temperature, the plants will be of little use for pot work, as the bloom they give under their unprepared condition is produced at the expense of the strength that was in them when taken from outdoors. Where Roses are wanted all the year round the right course is to get a sufficient quantity of plants strong and well established in pots, when with proper attention they will keep on gaining strength to produce many more and much finer flowers than partially established or non-prepared examples. If any of the plants are affected with worms, a little soil laid on the surface of the pots, where it will be washed down into the soil, will drive them away; their presence in the soil of pot Roses has a worse effect than with most things.

Pelargoniums.—Where considerable quantities of cut flowers are regularly required, a sufficient stock of early large flowering Pelargoniums should be grown, selecting such varieties as are cultivated by the market growers which are naturally early and free bloomers, and will bear a good amount of fire-heat without running to growth. The flowers of these are mostly of the frilled, or crimped petalled type, and on that account from their less formality are greater favourites for cut purposes than the even-formed florists' varieties. Where well prepared plants are at hand with their pots filled with roots, they will bear a temperature of 80° in the night without becoming drawn, provided they are kept close to the glass in a light house or pit. They may be had now in colour from almost pure white up to dark crimson.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Pines.—The secret of success in modern Pine culture is rapid growth from the sucker to the fruit; the means to this end is the selection of one strong sucker from each plant after the fruit is cut, or perhaps two where stock is scarce. The best medium for the expeditious rooting of the young plants is the old-fashioned bed of fermenting leaves or tan, which should be well worked and placed in a close, compact pit, and when the heat has settled down to 90°, the suckers may be taken off, trimmed, and potted at once into pots ranging from 5 in. to 8 in. in diameter. From the middle of February to the middle of March is a good time to start with the first batch, and if the compost is rough, warm, and dry, there will be little danger of potting them too firm. Plunge at once into the bed with their leaves well up to the glass, give them plenty of root and defer watering until they begin to make roots into the new soil. Let the temperature of the pit range from 55° to 60° at night, with a rise of 10° by day, and damp the walls with a fine syringe after closing on bright afternoons.

The stock of winter fruiterers having by this time been greatly reduced, those left may be plunged into a sweet, fresh bottom-heat in a smaller compartment, or well-heated pit to finish off. The house they have hitherto occupied will then require a thorough cleansing and scalding preparatory to getting in fresh plunging material for the second batch of summer fruiterers; meantime keep the plants steady and on the dry side in a bottom-heat of about 70°. Keep the air about fruiting plants generally moist and range the temperature from 70° at night to 85° or 90° after closing, with solar heat.

Plants now throwing up fruit must be closely watched, and if, as is sometimes the case, the bed shows signs of a rapid decline from exhaustion of moisture, water between the pots with tepid

water, and turn on more fire-heat to prevent it from descending much below 90°. This, with the aid of generous liquid in the pans and an abundance of solar heat, will help the fruit well out of the hearts of the plants without having recourse to continuous hard firing at a critical period when our uncertain climate does not always favour steady ventilation, and a liberal use of the syringe to counteract its drying influence.

Vines.—Remove all surplus bunches from the early Vines before they come into flower, leaving the most compact and best placed for the crop, and fertilize with Hamburgh pollen when they are dry and the temperature of the house has reached the maximum. All the Muscat-flavoured varieties, with the exception of *Madresfield Court*, require a little more heat than Hamburghs to set them properly, and on this account they should be grown at the warmest end of the house. But the mixed system is a bad one, and the sooner the large houses in private places give way to compartments for the different kinds of Grapes, the better will our culture be. The thinning of Grapes is a very important operation, and requires great care both in the manipulation and selection of the berries intended to make up the perfect bunch. If insufficiently thinned the berries become wedged and distorted, and seldom keep well even in summer, while on the other hand, too much thinning results in a large-berried, straggling bunch, which never travels well, and spreads all over the dish as soon as it is cut from the Vine. To avoid these two extremes, so well illustrated in one of the classes at Manchester, a thorough acquaintance with the capabilities of the Vines is the first essential, the rest is a matter of mechanical skill; but in all cases the early and complete thinning of free-setting kinds as soon as they are out of flower should never be neglected. With increasing length of days and a continuance of mild weather, good progress may be made by shutting in plenty of sun heat, but 60° to 65° for Hamburghs, and 65° to 70° for Muscats through the night will be quite sufficient.

Succession houses containing such kinds as Black Morocco, Mrs. Pince, Gros Colmar, and some of the best white varieties, exclusive of Muscats, should be helped forward with fire-heat and fermenting material to insure an early break and a long growing season. If Hamburghs are not grown with them for fertilizing purposes, see that a stock of pollen is collected from the early house when in flower. The much neglected Black Morocco, one of our best January Grapes, when left to itself is an invariable failure, but careful fertilisation with Hamburgh pollen for several days in succession secures to us a set equal to the most prolific Hamburgh. Provision should also be made for fertilising the Muscats when in flower, not with their own, but with foreign pollen, which may be kept for several weeks in a dry, warm place after it is collected. An important adjunct in the setting of all shy kinds of Grapes is the maintenance of fresh, active roots in a warm, well-drained internal border, and where these conditions do not exist the vigorous application of steel forks, new drainage, and fresh compost will be found the best remedy.

Late houses.—The worst managed Vines in many gardens are the late ones. They are expected to accommodate themselves to a house full of bedding plants through the early spring, to break into growth, and set with a minimum of fire-heat, to ripen their fruit and wood by September, and support a full crop until Christmas, the usual time for bottling. Another drawback is the inconvenient season for renovating the borders, but this should not stand in the way, as first-rate old Grapes which will keep up to the advent of new ones cannot be expected where the roots are not in the highest condition. Internal borders may be renovated at any time after the Grapes are ripe; the month of February is perhaps the best for lifting and relaying the roots outside, and quality, being of more importance than quantity the borders should be elevated on good drainage, with a run of 6 ft. to 9 ft. inside and out. Good sods of turf built up as

the border is made make the best retaining walls, as they are dry, warm, and elastic. Rich trusy loam, burnt earth, and 12 per cent. of crushed bones make an excellent root-producing compost, and frequent mulching with rotten manure will keep them in full activity near the surface.

Melons.—Former directions having been followed, the first batch of plants will now be taking to the compost, in which they have to grow until they have matured a crop of fruit. If in 16-in. pots keep the fermenting leaves in which they are plunged frequently turned and renovated with a little short horse manure to prevent the bottom heat from falling below 85°. Place a stonkstick to each plant, and train up to the trellis as growth proceeds. When this stage has been reached remove all side shoots at the first bud from the main stem, and carefully preserve the leaves for the twofold purpose of increasing the vigour of the plants, and the prevention of canker when the time arrives for shutting up with strong heat and an abundance of moisture. To secure an early "set" of fruit free kinds may be stopped when they have extended from 3 ft. to 4 ft. over the trellis; they will then throw out a great number of side shoots, bearing female blossoms, which must be fertilised, thinned out, and pinched when a pair of equal size have been decided upon. Although Melons are gross feeders when swelling off a crop of fruit they require careful watering through the early stages of growth, particularly where the pots are plunged up to the rims in moist leaves, and unless the compost is very poor they never require feeding until after the fruit begins to swell. To keep up a steady supply of fruit a few seeds should be sown singly in small 3-in. pots every fortnight, and all surplus plants should be destroyed before they become pot-bound and infested with red spider.

Cherries.—As a precautionary measure in the management of these and Plums the fumigation of the trees just before the blossoms begin to expand should never be neglected. Some growers syringe with a strong decoction of Quassia, but Tobacco smoke permeates every cranny and makes short work where the liquid might fail. If inside borders were well watered and mulched at the time of starting the roots should be in good growing condition, but with success in all matters of artificial culture depending upon attention to minor details, this important point must not be overlooked. Pay particular attention to ventilation, as Cherries, like all other kinds of stone fruit, cannot be expected to set in a close humid atmosphere. Syringe regularly until the flowers begin to unfold; give a little air at 50°; gradually increase it through the fore part of the day until a free circulation is secured; close again at the same figure, and allow the temperature to recede to 40°, when fire-heat is needed, and 45° with a chink of air when the weather is mild. When the flowers are fully expanded and a sharp shake sets the pollen free, fertilise with a camel's-hair brush about noon on fine days. Discontinue syringing, but damp the floors frequently when there is a circulation of air strong enough to prevent condensation of moisture on the glass and petals of the flowers.

KITCHEN GARDEN.

—R. GILBERT, BURGHLEY.

WE have just sown our first spring seeds, including Dean's Snowball Cauliflower, Carter's crimson Incomparable Celery, Paris Cos and Hick's selected Lettuce, and a few Onions, to be pulled green for salads. The best Rhubarb which we get through the year is that grown in early spring by merely laying a little long litter on the crowns. The same may also be said of Sea-kale, but this should be covered with burnt refuse to exclude light, finishing off with a few half-rotten leaves. This is ready to cut in the end of March, and is truly delicious. Early Radishes we grow in boxes, 6 in. deep. They are placed in gentle heat until well up, when they are thinned out and transferred to cold houses close to the glass. Tarragon, Mint,

and small salading we grow in the same manner. Early Potatoes in boxes should now be earthed up to the level of the box, giving no more water than is absolutely necessary. I know nothing so impatient of water as early forced Potatoes. As a matter of fact our early frame Potatoes only receive one watering during the time they are growing, and that is before they are earthed up. By watering at that time and earthing up immediately afterwards the soil about the roots keeps sufficient moisture for their wants. We planted our first house of Tomatoes February 11. The young plants grow much stronger when planted out than in pots; keep the house humid and warm, say from 55° to 60° at night, with a proportionate rise in the day time, admitting air on all favourable occasions. The general work just now is to keep well ahead with digging. Every vacant inch should be turned up so that the soil may get well pulverised by frost. All kinds of spring Broccoli will be this year a great success in more ways than one; it will give us an opportunity of selecting for succession the best varieties; here Snow's Broccoli heads the list for early work. We have been cutting a full supply of it since November. It is now (February 11) finished. A variety called Hoskin's Broccoli is likely to prove a capital kind, coming in after Snow's; the heads are not large, but white and solid. Lymington will be the next, followed very closely by Watt's variety. These two last for some time, and are followed by Cattell's Eclipse and Burghley Champion, giving a succession until the second week in June.

PROPAGATING.

THE unusual earliness of the season will be of great service to those desirous of getting up as large a stock as possible of any class of soft wooded plants, for in this respect a good deal of success depends on starting the plants as soon as possible, and thereby obtaining early cuttings. A case in point is that of the variegated Coprosma Baueriana, which, as a rule, is very erratic regarding the formation of roots, sometimes striking without difficulty, and at others the cuttings shrivel and absolutely refuse to root, whereas if now placed in a growing temperature of from 60° to 65° young shoots quickly make their appearance, which, if taken off and put in a close case can be depended upon to strike. Of course they must not be kept too close and damp or decay will carry a good many off. Pelargoniums of the zonal section that have been kept warm for winter blooming will have made by this time a crop of young shoots, which, if taken off, and either inserted singly in small pots, or three or four together around a 4-in. one, will root at once. The best place for these cuttings is a light dry situation, such as a shelf near the glass; in making them cut them off just below a leaf, but do not remove the leaf, as if cut decay is apt to set in, whereas if left on it quickly shrivels, and then parts readily from the stem without violence. Bedding Pelargoniums, especially the fine foliaged ones, are in many cases propagated extensively in spring, and if kept now in a growing temperature they will yield a great number of cuttings, which must be taken off and treated as just recommended.

Seed sowing.—A great many kinds of seeds may now be sown, including all those of plants required for bedding, with the exception of a few of the most rapid growing sub-tropical subjects. Where Cannas are to be raised from seed soak them for a few days in warm water until the germ shows itself before sowing, or they will sometimes lie a long time in the ground. Where this is done, water as soon as the seed is sown, and on no account allow them to become dry afterwards, or many will be killed. The most satisfactory way, however, of increasing them is by division, as seedlings are very variable both in the colour of their foliage and in habit. A few Asters may now be sown for early flowering, and placed in a frame; and Mignonette, Rhodanthe, and some of the ornamental Grasses, sown now in the pots in which they are to flower, will grow so

freely as to furnish a succession to those sown in the autumn. In sowing very small seeds it is better to cover the pot with a pane of glass than to strew any soil or sand over them, but when that is done the pots must be kept well shaded; indeed, before the seeds germinate they are better kept covered entirely with brown paper, and until the glass is removed, shaded from sunshine; many are lost in consequence of neglecting this precaution as with the sun shining on the glass, the temperature underneath becomes intolerably hot, and the germinating seeds are thus parboiled, and perish. As soon as the seed grows, the glass should be slightly tilted, and gradually removed. T.

SOCIETIES.

ROYAL HORTICULTURAL SOCIETY.

FEBRUARY 14.

MAGNIFICENT groups of Persian Cyclamens, Chinese Primulas, and Cinerarias constituted, perhaps, the greatest attraction on this occasion, though there were also some striking miscellaneous objects, among which the following were awarded first-class certificates:

CŒLOGYNE CRISTATA LEMONIANA.—A lovely variety of this favourite Orchid, having the crest of the lip pale sulphur-yellow instead of orange; therefore, very distinct and beautiful. From Messrs. Veitch & Sons, Chelsea.

RHOODENDRON QUEEN VICTORIA.—A hybrid variety of the greenhouse section; very handsome and distinct in colour, which is an orange-red shaded with a deeper hue. It is a vigorous grower and free bloomer. From Messrs. Veitch.

MUSCARI LINGULATUM.—A new Grape Hyacinth much resembling the commoner kinds as regards the flowers, but very distinct in foliage, which is deeply channelled and glaucous. It was shown by the Rev. Harpur Crewe, Drayton-Beauchamp, Tring.

PRIMROSE HARBINGER.—A handsome variety with enormous flowers of a pale yellow colour, borne profusely on stout stalks well above the vigorous green foliage. From Mr. R. Gilbert, Burghley House, Stamford.

CYCLAMEN GIGANTEUM COMPACTUM.—An exceedingly fine variety of the Persian Cyclamen with very large flowers, white with crimson mouth and broad vigorous foliage, handsomely mottled. This was shown by Mr. Clark, Twickenham. Another form of *C. giganteum* named *roseum compactum* also received a first-class certificate. Shown by Mr. Edmonds, Uxbridge. The flowers of this were abundantly produced on stout stalks, and were of a rosy pink colour.

PRIMULA MAGENTA GEM.—One of the finest varieties of the Chinese Primula yet produced. The colour is a very brilliant magenta, and the symmetry of the blossom and its size are perfection. It was shown with other seedlings by Mr. Little, Hillingdon Place, Uxbridge.

WELLINGTONIA GIGANTEA PENDULA, a weeping branched variety very distinct in character from the ordinary form. Shown by Messrs W. & J. Brown, Stamford Hill.

The finest Cyclamens came from Mr. Clark, of Twickenham, whose extensive group represented uniformly well-grown plants, consisting of pure white, deep crimson-red, and almost every conceivable intermediate shade. The Cinerarias and Primulas from Mr. Little's garden, too, were splendid, particularly the latter, which represented the flower as fine as it can be produced. The seedling Rose Superb, Meteor, Ruby Improved, Crimson, and Purple Gem were all admirably represented, and showed the beautiful colours of each sort to perfection. Of Williams' lovely alba magnifica, one of the best of all whites, Mr. Little's gardener showed some three dozen excellent plants, well grown, large, and superbly flowered, and the same kind was also admirably shown in quantity by Mr. Barron, from the Society's garden at Chiswick; whence also came a grand group of the old double white Primula, beautifully grown and flowered, as well as the new

doubles raised by Mr. Gilbert and others. From Chiswick also came a well-grown collection of Cinerarias, all dwarf and sturdy in growth, and profusely flowered; altogether an admirable strain.

Messrs. Veitch showed a small but choice group of flowering Orchids and other plants, including *Odontoglossum blandum*, *Angraecum citratum*, *Dendrobium ainsworthii*, all among the cream of Orchids. The group also contained two superb varieties of *Amaryllo-Ilustris* and *Grandeur*. A well-grown collection of *Cyclamen persicum grandiflorum*, one of the finest of all the varieties, and a group of a new Chinese *Primula*, named the Queen, a sort with Fern-like foliage and enormously large blossoms, pure white turning to delicate blush. It is a beautiful and most desirable variety. Another noteworthy plant in the group was *Staphylea colchica*, a beautiful shrub for forcing into flower early, as its white racemes of blossoms are so valuable at this season.

Sir Trevor Lawrence contributed from his garden at Burford Lodge, Dorking, a grand specimen plant of *Odontoglossum pulchellum majus*, which was over 3 ft. across, and bore some three dozen flower-spikes—a beautiful sight in itself. From the same garden also came two or three plants of *O. Ruckerianum*; a superb Orchid in the way of *O. Andersonianum*, but with the blossoms flushed with purple. Mr. G. F. Wilson also showed some remarkable examples of *Odontoglossum crispum*; one was an exquisitely spotted flowered variety like a leopard's skin; the other remarkable for the large size and symmetry of the bloom, and crisped margins. The specimen shown bore fourteen flowers on a gracefully arching spike; and another spike bearing the same number of flowers was produced from one pseudo-bulb—a proof of how well cool Orchids are grown at Heather bank, Weybridge.

Messrs. Cannell & Sons, Swanley, showed a beautiful plant of the old Cineraria cruenta, which made a bright display and was much admired. The plant was so well grown that a cultural commendation was awarded to the exhibitors. From Messrs. Cannell also came flowers of the blue *Marqueterie* (*Agathaea coelestis*), also much admired, and a selection of blossoms of Chinese *Primulas* and Cinerarias, representing the admirable strain of these flowers grown by the exhibitors. Mr. Turner, Slough, again showed some of his new seedling Carnations, all of which were handsome and good, but the finest were *Whipper In*, *Rosy Morn*, *Meteor*, *Rosalind*, *Model*, *Distinction*, and *Firefly*, all of very bright distinct colours and superb flowers of large size.

Mr. Green exhibited from Sir George Macleay's garden, Pendell Court, Bletchingley, the beautiful *Billbergia nutans* with two fine flower-spikes, also a fine branching spike of *Odontoglossum roseum*, a very pretty Orchid when well grown, as Mr. Green showed it. From Mr. Goldsmith, Hollanden, Tonbridge, came a new *Iresine* named *Formosa*, a sport from *I. Lindeni*. It is beautifully variegated in the foliage with golden yellow, green, and crimson, and also has crimson stems. It promises to be a good bedding plant, and we hope to see it again. Mr. Parr, Givon's Grove, Leatherhead, showed plants of his fine new *Abutilon* *Crimson King*, which has dark crimson-purple blossoms, borne on stout plants of good habit. Mr. A. Waterer, Knap Hill Nurseries, Woking, sent a welcome basket of coloured *Primroses*—a harbinger of spring; and Mr. Todman, of Totting Comm, again exhibited his new seedling *Acaes Princesse Helene* and Duke of Albany, which the raiser claims to be good forcing kinds. A splendid Chinese *Primula* named *Breakspeari* was shown by Mr. Murdoch, Hounslow. It is one of the finest and the deepest we have seen.

Fruit—There was very little to engage the attention of the Fruit Committee on this occasion. Some very excellent *Bala Alcanta* Grapes were shown by Mr. Atkins, gardener to Sir Loyd-Lindsay, Lockinge Park, Wantage. There were half-a-dozen kinds, all remarkable for size of bunch and berry, and in a wonderfully fine state of preservation. A bronze medal was awarded Mr. Barter, of Lich-

field St., Harrow Road, who again exhibited some excellent produce from his Mushroom beds, and likewise spawn. The samples were very fine, and, of course, superior to any he has shown during the winter. Mr. Green, Pendell Court, showed fruits of the purple fruited variety of *Banana*. A few dishes of Apples were shown, among them being an excellent dish of Wellingtons from Mr. L. Killick, Maidstone, which were remarkable for their high colour. Messrs. Bunyard, Maidstone, exhibited fruits of *Smart's Prince Arthur*, a handsome conical shaped variety. Lady Dorothy Neville exhibited two dishes of *Tangerine Oranges* from her garden, which were quite as fine as imported fruits.

Scientific committee.—Sir J. D. Hooker in the chair.—*Proliferous Acorn-cups*.—The chairman exhibited malformed cups of *Quercus Ilex* (the evergreen Oak) received from Mr. F. Moore, of the British Museum. The trees grew on the cliff edge, Isle of Wight. Minute Acorns appeared to have been produced in the axils of the bracts which formed the cups. *Carnation disease*.—Mr. W. G. Smith exhibited specimens of Carnations received from Dr. Hogg, attacked by the nematoid worm, *Anguilla*. They entered the plant at the collar and penetrated through the pith to the apex, laying their eggs within the stem, which bore a pustular appearance in consequence. *Root malformation*.—Dr. M. T. Masters showed a specimen of Elm root much distorted in places in consequence of meeting with obstruction in growing in lias limestone rock. It was received from Mr. William Ingram, of Belvoir Castle. *Variation in Pear-leaf*.—Mr. Blackmore exhibited a trilobed Pear-leaf, such being in this case a reversion to the primitive character of the plant. Mr. Henslow remarked that in some cases the change from a simple leaf, to a lobed and compound state is the result of further development, as may be easily traced in Blackberries and Raspberries.

PLANTS, &c., EXHIBITED.—*Ocaalis micophylla*.—A small-leaved species allied to *O. corniculata* was shown by Mr. G. F. Wilson. It appears to be often introduced with Tasmanian and other plants. *Musciclingulatum*.—Rev. H. H. Crew exhibited a specimen, one of three now in this country, from Silesia. *Dried flowers and fungi*.—Two cases containing exquisitely prepared fungi and flowers with their natural colours were received from Mr. English, of Epping, who has lately published his methods by which the natural effects can be retained. A vote of thanks was accorded him. Prof. Church remarked on Mr. English's method of drying by plaster of Paris. That a method had long been adopted in France of using well dried sand mixed with plaster of Paris (1 to 3 part), with the addition of camphor to protect against mildew. *Sections of flowers for class teaching*.—A series of flowers dissected out and mounted on mica in antiseptic fluid was exhibited by Mr. Houston, botanical lecturer at the Birkbeck Institute. The use of them was for teaching in winter. A vote of thanks was accorded to him. *Apparent superfecundation in the Pea*.—Mr. T. Laxton, of Bedford, forwarded a communication describing some experiments in fertilisation of the garden Pea. Taking Laxton's *Prolific Longpod* he fertilised a single flower with the pollen of six varieties. The pod thus treated had eight Peas, which on germination were distinguished as A, B, &c. The Peas borne by these were very various, and resembled more or less those of the pollen-bearing varieties. From these facts he concluded: 1, That the pollen of more than one variety of Pea used to cross-fertilise the same flower may influence more than one ovule in the same ovary; 2, That there is some evidence of the pollen from more than one variety affecting the same ovule.

REPORT ON WINTER LOSSES, &c., IN PLANTS.—The secretary, the Rev. G. Henslow, gave an account of the progress he had made in compiling statistics for a "Report on the Meteorological Phenomena of, and consequent injury to plants in severe winters." He had obtained particulars of several winters from A.D. 220 to 1881, but those during which destruction of, and injuries to plants

had been specially recorded were the following seven: 1851-2, 1852-3, 1859-60, 1860-1, 1878-9, 1879-80, 1880-1. He had collected all the information he had at present been able to find with reference to these winters, and had drawn up just a short account of the principal meteorological phenomena of the year preceding each winter, as well as of the winter itself, as the behaviour of a plant under frost so much depends upon its previous conditions; in each case such was followed by details of injuries to, and losses of plants over as many places in the British Isles as possible. The importance of registering meteorological phenomena and the losses in several winters lay in the fact that the conditions of the winters respectively differed in many ways from one another. The consequence was that the immediate cause of the plant succumbing to frost was not always the same. There would be an introduction dealing with several matters bearing on meteorology and plant injuries, and he proposed completing it with copious indices, so that no difficulty would be met in finding the exact behaviour of every plant in any country and in any winter.

Annual general meeting.—This was held on Tuesday last, the Rt. Hon. Lord Aberdeen in the chair. The following gentlemen were elected officers for the ensuing year, viz., Lord Aberdeen, president; Mr. Haughton, treasurer; Major F. Mason, secretary; Lord Alfred Churchill, Major F. Mason, and Mr. Haughton, expenses committee men; Mr. Aspinall, Mr. J. Lee, and Mr. J. West, auditors. The vacancies on the council caused by the resignation of Mr. Arthur Grote, and Sir Charles W. Strickland, Bart., and by the decease of Dr. Denny, were filled by Mr. E. G. Loder, Mr. J. H. Mangles, and Mr. W. Lee. The annual report was read and adopted.

OBITUARY.

THE death of Mr. WILLIAM HURST, head of the firm of Messrs. Hurst & Son, Seedsmen, Houndsditch, is announced at the age of 52. Mr. Hurst succeeded his late father as head of the firm a few years ago, and among the members of the seed trade by whom he was best known, he was greatly respected. For a great many years the business was carried on at 6, Leadenhall Street, but some time ago it was transferred to Houndsditch. Mr. Hurst was the only male representative of the family, and his share of the business passes into the hands of his sister, who is married to Mr. Sherwood, now the leading partner, who will continue the affairs of the house under the old title of Hurst & Son.

We have also to record the death of M. J. DECAISNE, Director of the Muséum d'Histoire Naturelle, Paris. As a botanist M. Decaisne has done much useful work, but his name is, perhaps, best known in this country in connection with "Le Jardin Fruiter du Muséum," and "Traité Général de Botanique," both important works.

Clay analysis.—(R. W.)—There is a detailed account of the lower greensand, including its Atherfield clay, in Prof. Flett's paper in the "Transactions of the Geological Society," series 2, Vol. IV., p. 103, but I am not certain if it gives an analysis. You would probably obtain the information you require at the Royal Agricultural College, Cirencester, or the Royal School of Mines, Jermyn Street.

Names of plants.—T. B. Watson: *Aloe frutescens*.—T. H. P.: 5, *Aspidium Filix mas*; 6, variety of preceding; 7, *Aspidium serrulata cristata*; 8, *Nephrolepis exaltata*; 9, *Aspidium aculeatum*.—A. Gibson: The flowers are much withered, but appear to be *Narcissus floribundus*, found wild in Cornwall.

COMMUNICATIONS RECEIVED.

T. B. W.—A. N. Z.—E. S.—J. R. R.—G. P.—C. L. & Son.—W. C.—H. V.—T. B.—W. C.—G. I.—Sigma.—J. S. W.—M. T.—J. W.—I. C. T.—B. W. W.—W. P.—R. G.—W. W.—J. M. Brockhurst.—T. H.—S. D. J.—B. H.—T. D. H.—J. B.—W. H. M.—J. G.—A. B. W.—D. E.—J. C.—J. S. W.—W. E. M.—G. L.—J. C.—L. G. S.—W. N.—T. D. H.—C. Co.—A. M.—G. S.—E. J.—W. H. H.—H. J.—T. A.—P. H.—C. J. K.—F.—Alpha.—W. J. M.—J. P.—J. D.—P. I. L.—St. B.—E. D. S.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

HYBRID AMARYLLIS AT CHELSEA.

ONE of the most remarkable exhibitions of Amaryllis that we have ever seen is now on view at the Royal Exotic Nursery, Chelsea, where for some years past particular attention has been directed to the cultivation and hybridisation of this flower, the result being that a wonderfully fine collection of varieties has been obtained. To give some idea of the extent of this collection it need only be mentioned that it numbers some 6000 bulbs, of which from 1000 to 1200 are showing flower, and between 700 and 800 are fully expanded. Such a gorgeous array of bloom is striking in the extreme, and seeing the plants in their natural style of growth at home is much more interesting than seeing them on an exhibition table arranged with monotonous uniformity and necessarily staked and tied in a formal manner. Here they unfold their blossoms unmolested, and the stems being of various heights the display is set off to the greatest advantage. In order to accommodate this enormous collection, Messrs. Veitch have erected a house to be expressly devoted to Amaryllis culture, and therefore it is constructed on the principle best calculated for the welfare of this class of plants. It is a span-roofed structure, 70 ft. long by 20 ft. wide, and about 9 ft. in height. It is divided in the middle by a glass partition, one half being devoted to flowering plants, the other to those not in flower. Running through the centre is a broad bed, raised about 4 ft., so as to bring the plants well up to the light; a path encircles this bed, and there are wide side beds, which are also raised so as to show off the plants to good advantage. The heating is effected by three rows of 4-in. pipes laid beneath the plunging beds; but these are supplemented by a couple of rows of 2-in. pipes, which run underneath the rafters of the roof, a novel arrangement, but one which serves a purpose which the ordinary plan of heating cannot effect. By the position of the pipes they heat the upper stratum of cold air in the house, and so prevent, in a great measure, cold currents from descending on the plants. They also dry the atmosphere immediately above the plants, a great desideratum in Amaryllis culture, as the flowers are apt to suffer from damp. The heat radiated from these small pipes is found sufficient to maintain the requisite temperature when there is not much frost. The beds are about 15 in. deep, and are filled with old tan, in which the pots are plunged to their rims; the tan being slightly heated by the pipes beneath is found to be beneficial to the plants, and they develop far finer growth and flowers than when grown without this assistance.

The system of growing Amaryllis is different from that practised some years ago. As in the case of Cyclamens and similar plants, so with these the plan is to grow them on quickly from seed. Now it is an ordinary matter to have an Amaryllis in flower in less than two years from seed, which at one time would have been thought impossible. The majority of the plants in flower in this collection are two, three, and four years old, the latter being remarkably large and plump.

THE HYBRIDISATION of the Amaryllis is by no means new; on the contrary, it was practised years ago, particularly by the late Dean Herbert who raised a large number of hybrids. Old hybridisers had not, however, the material to

work with which modern hybridists possess. The introduction of late years of such beautiful species as A. pardina, Leopoldi, and others has given a fresh impetus to this practice, the result being a magnificent race of varieties totally distinct in character from those obtained by Dean Herbert and others. The varieties of Amaryllis now in cultivation have been derived from numerous natural types, the chief being A. alula and its several varieties, Acramanni, pardina, Leopoldi, Regine, solandriiflora, and vittata. There is no doubt, too, that other species have been employed, and particularly the West Indian A. equestris, with orange-red blossoms, for some of the varieties possess this colour which could have scarcely come from any other. These hybrids for the most part bear more or less strongly the impress of their parentage; therefore, as there is a family likeness common to many of them they may be conveniently thrown into natural groups, such as the Leopoldi type, the pardina, Acramanni, alula, and vittata groups. This arrangement, too, will assist the reader in the following notes on the most remarkable varieties at present in flower in the Chelsea collection. It may be well perhaps to mention that with regard to the types we still adhere to the old nomenclature and call them all species of Amaryllis, but modern botanists tell us that the genus Amaryllis is monotypic, A. Belladonna being the only Amaryllis; all others they class under Hippeastrum.

THE LEOPOLDI section is characterised by large and finely-formed flowers with broad sepals, which are creamy white, more or less broadly banded transversely with some shade of crimson. John Heal is, we consider, the finest flower in this class—indeed, in the whole collection—as regards form and size, and it well illustrates the wonderful perfection to which the Amaryllis has been brought by this firm. The flowers are 7 in. across, with sepals of about 3 in. in width, of a rich deep crimson, broad, tipped with creamy white, and with the centre heavily marked with crimson, which is quite a break in the Leopoldi section, and a step in advance as to removing the unattractive green centre which most of the flowers of the section possess. This handsome variety was named by Messrs. Veitch in compliment to their foreman, under whose charge the collection is placed. Celicia is another grand flower of the Leopoldi group. It is remarkable for its broad sepals, which are deeply coloured with velvety crimson, and have whiter markings than any other. Illustrious is likewise a finely formed, large flower, like the last, but copiously spotted at the back of the sepals with blood red. A very handsome variety. Sybil has unusually large flowers, being 9 in. across. The sepals are broad, uniform in size, bright crimson, and most peculiarly flaked and striped with white, and with white tips. It is the least like the Leopoldi section of any. Mars is a finely formed flower, nearly of a uniform deep crimson, and scarcely tipped at all. Endymion has very large flowers of handsome form and great substance. In addition to the broad, transverse band of crimson, the whole flower has the appearance of being bespattered with blood. It is a strikingly handsome variety. King Arthur is a large flower, and appears, like the last, to have a good deal of the pardina character about it, as it is very much spotted. Vivian Grey is remarkable for the manner in which the red of the flower is beautifully reticulated with white.

THE ACRAMANNI GROUP are all characterised by intense brilliancy of colouring, derived from A. Acramanni pulcherrima, while the fine form and size of the flowers have been so infused into it by such kinds as Leopoldi. Of this section the finest in flower are Warrior, a vivid, deep crim-

son; Mad. A. Stirling, flowers large and bold, maroon-crimson, with white centre, or as near white as has yet been obtained; Sir Garnet Wolsley, a very handsome flower, being of fine form and an intensely vivid crimson, netted with darker lines; Coningsby, rich maroon, and a fine flower; Nero, bright scarlet, tipped with white and striped; Prospero, a deep claret crimson; and James Douglas, one of the finest of all this section, a brilliant crimson, striped down the middle of each sepal with white, and spotted with red on the exterior; the flowers are large, finely formed, and borne horizontally. This variety nearly approaches what is figured in the *Botanical Magazine*, in 1799, as A. Regine, a flower which, by a singular coincidence, "was caused to be drawn" by a Dr. James Douglass. This new variety is, of course, finer in every respect, but there is no doubt that its parentage might be traced to A. Regine.

PARDINA SECTION.—In this the blossoms possess a predominance of copious spotting, generally red on a light ground, and crossing the natural species with others, such as Leopoldi, in order to improve the size and form of the flowers does not appear to have affected the colouring in any great degree. One of the prettiest of this group now in blossom is Orsino, which has medium-sized blossoms with a white ground colour, profusely freckled and spotted with bright red. Brilliant is another remarkable variety, the result of crossing A. pardina with Acramanni pulcherrima. It has rich scarlet-crimson blossoms spotted like those of A. pardina.

THE STRIPED GROUP is quite distinct from any of the preceding. It consists of varieties, evidently descendants of the old A. vittata, for they possess the same long, horizontally-poised blossoms, which are white, longitudinally banded with a dark colour, usually some tint of crimson. The very decided and sweet odour emitted by the flowers of this section is a point in their favour, which, no doubt, they inherit from A. solandriiflora, another species which has been employed in obtaining these hybrids. Mrs. T. Gilbert is the most striking variety of this group at present in flower. It is a pretty plant, with large white flowers, striped with bright crimson. This section usually bears more flowers than the others.

THE ALULA SECTION is characterised by long funnel-shaped blossoms standing out boldly and horizontally, and generally possessing a rich dark colouring. There are not many varieties belonging to this section in flower at present. One of the finest is Ajax, which has very large blossoms of a deep blood-red, beautifully mottled and spotted with white, and with a decided suffusion of an orange tint in the throat. It possesses great substance and lasts a long time in perfection. The above are but a few of the many varieties in flower, and these represent only a portion of this grand collection. Some of the finest are yet to flower, and for several weeks the house will present a brilliant display of bloom. W. G.

TECOPHYLEA CYANOCROCUS AND LEICHTLINI.

THESE most exquisite of blue flowered hardy spring-flowering bulbs (so admirably figured in the last volume of *THE GARDEN*, p. 62) are now in great beauty in a pot in my greenhouse, and are the admiration of everyone who sees them, as beside their larger and much brighter coloured flowers the pretty little Chionodoxa Lucilæ must hide its diminished head. I received last autumn one bulb of the first and two of the second from their introducer into Europe, Herr Max Leichtlin, of Baden-Baden, and having been warned by him that they would only thrive in

a pot if treated as perfectly hardy bulbs, as they are (having withstood in his garden a temperature of 5° below zero without any injury, planted out in the open border), I plunged the pot in which I had planted them in a narrow border on the south side of a low wall in my garden, and left it there till the commencement of this month when the plants were about 1½ in. above the ground, when finding that the slugs were beginning to pay their attentions to them, I lifted the pot into the cool greenhouse, and placed it on a shelf near the glass exposed to the sun, where the plants matured and opened their beautiful flowers in about ten days' time. Each bulb has sent up two stems, and the deep blue variety (*T. cyanocrocus*) has three flowers, while the two bulbs of the paler variety (named after its introducer) have four and three respectively. The flowers of different bulbs of the last named variety seem to vary a good deal both in size and substance and in colouration, those of one of my bulbs having considerably thinner and less perfectly shaped flowers than the other, while their colour might be more correctly described as white with blue tips to the petals than blue, whereas the other has turquoise blue flowers with a pure white throat or centre. I hear from Herr Max Leichtlin this morning that the flowers of the paler variety should be nearly double the size of those of *T. cyanocrocus*, but in my plants they are certainly not so, being almost, if not entirely, identical in size. He also says that these bulbs produce much larger and finer flowers when planted out in a sunny, sheltered spot in the open than they ever will in a pot; it, therefore, remains for the grower to consider whether it is better to have finer flowers, which from their early season of blooming and nearness to the earth, may be battered and broken by inclement weather almost immediately after opening should the season be unpropitious; or somewhat smaller ones, which with the protection of the greenhouse afford him pleasure for some considerable time, and are much more accessible and better seen than they would be if growing in the open garden. Herr Leichtlin has also got another variety of this beautiful family, named *T. Regeli*, which has not yet bloomed in Europe, but which he hopes to see this year, and also the true *T. violacea*, which, if not better than its portrait in the late Dean Herbert's work on *Amaryllids*, must be a comparatively poor and insignificant variety. W. E. GUMBLETON.

NEW BOMAREAS.

AFTER a period of some five or six years since the last addition (*B. Carderi*) was made to the beautiful genus *Bomarea*, our gardens have been enriched by three others equally important. These are *B. conferta*, *vitellina*, and *Shuttleworthii*, all of which have recently been imported in quantity from South America by Messrs. Shuttleworth, Carder, & Co., in whose nursery at Park Road, Clapham, we saw them the other day.

B. CONFERTA has long been known to botanists, having been described thirty years ago in Kunth's "Enumeratio Plantarum," where no fewer than sixty-one species of *Bomarea* are enumerated, but of which we have even now only about half-a-dozen species in cultivation. *B. conferta* is a very fine plant that bears large clusters of blossoms of a rich crimson colour, densely packed together, and therefore very attractive. It has long slender stems, furnished with dark green leaves, and is apparently a rapid grower, judging by the rate at which the plants in this nursery have grown since we saw them

a few weeks ago. It is a native of the western declivities of Pinchincha, where Hartweg first discovered it. The other two species are apparently quite new to science, but the glowing description given of them by their collector, Mr. Carder, as well as of *B. conferta*, is enough to awaken the strongest desire to see them in flower in our greenhouses.

B. SHUTTLEWORTHII, we are told, is an extremely handsome species from Bogota. The flowers, about 2 in. in length, and arranged in a large loose umbel, have their inner divisions of a beautiful canary-yellow, while the outer are of an orange-vermilion tint, colours which cannot fail to be exceedingly attractive; borne, as they are, gracefully on slender twining stems, nothing more beautiful or more appropriate for adorning the roof of a greenhouse could be imagined.

B. VITELLINA, the other new species, discovered by Mr. Carder, is likewise a beautiful plant, having large pendulous umbels of blossoms nearly 2 in. long and of a rich orange-yellow. This is likewise a native of temperate South America.

Now that these beautiful new *Bomareas* have been successfully imported, all plant lovers anxiously look forward to their flowering, and we heartily hope that their beauty will be such as will give an impetus to collectors to send to us other and perhaps even more beautiful species that abound in the forests of South America waiting to be introduced. The culture of those we have had a long time in cultivation is of the simplest kind, and one only has to turn to the plants in the Cactus house, at Kew, in order to prove it; nothing can be more charming than those plants are when in full beauty.

W. G.

EDITOR'S TABLE.

An immense heart-shaped bloom of André's scarlet *Anthurium* from the gardens at Ashgrove, Pontypool, is, we hope, the signal of the end of foggy, flowerless days, even in London for some time. The flower is clear over 7 in. in the length of its brilliant spathe, and very picturesque from being contracted about the middle. This plant, and many others, seem to be admirably grown in these gardens. The spathe is 6 in. across.

CATTLEYA TRIANE.—From Sir William Marriott, The Down House, Blandford, comes a wonderfully fine variety of this beautiful Orchid, with three large expanded blossoms on one stem. The petals are nearly 3 in. across, of a soft purple-lilac, while the large and exquisitely fringed lip is of the richest amethyst in the lower half, and bright golden yellow beyond. Altogether the flowers represent one of the choicest varieties, and the excellent growth shows how well its culture is understood in this Dorsetshire garden.

A YELLOW *ODONTOGLOSSUM CRISPUM*.—A lovely variety of this popular Orchid comes to us from Mr. Fowler, of Ashgrove, Pontypool. The flowers are of moderate size, with fringed lip and petals. The ground colour is pale yellow. On three of the sepals are large irregular blotches of chocolate-red; the petals are spotted less heavily, as is also the labellum. It is a most unusual variety of *O. crispum*, and more resembles some of the hybrids between it and other species, which indeed it may prove to be. The many varieties of this charming plant that now exist make it all the more precious for our gardens.

DENDEBBIUM DALHOUSIANUM.—Surely the Tropics have nothing more lovely or more charming in colour than this, with its large raceme of large blossoms, the lip mottled over with delicate cream-coloured filaments, and stained with two large deep crimson blotches, the rest of the flower, inside and out, being of the softest salmon yellow, with delicate veins of faint colour. A noble specimen comes to us from Mr. Robert Whyte, Pentland House, Lee, the best we have seen.

ONCIDIUM WELTONI.—Among the many Orchids which we are accustomed to hear called lovely, and the equally great number that people call distinct and new, the ordinary observer can often see very little that strikes him as really novel. This plant, it seems to us, has true distinctness, and is beautiful and singular in colour, and large and handsome in flower. It is sent to us in fine condition by Mr. Robert Whyte, of Pentland House, Lee. It is an Orchid that we should like to see grown well in every garden.

SINGLE ROSES.—Some charming single and some double Roses from Mr. G. Paul, who, we are glad to state, is turning his attention to plants so much wanted. His *Crimson Perpetual* is a single seedling of the Duke of Edinburgh. It is a rich vivid crimson and very good in form, with clear yellow stamens. It seems to be good in substance, as the florists say, has large petals, and lasts long in the cut stage, which one would not, perhaps, have expected. *Papillon* is a singularly curious Tea-scented Noisette Rose with narrow, twisted petals, and somewhat resembles a Japanese *Chrysanthemum*. It has a bright crimson bud. It will be an interesting climbing Rose, desirable for a south wall.

WHITE LILAC.—From Linton Park, Maidstone, Mr. Groom sends a beautiful bunch of this forced; he has had large quantities of it for the last six weeks. The kinds are the small Persian and the common sort (*Syringa vulgaris*). It is a singular fact that while the Persian retains its lilac colour when forced, the common kind, which Mr. Groom says is the large purple variety, is almost pure white. This peculiarity is also seen in the variety Charles X. when forced. It is fortunate that these favourite hardy shrubs lend themselves so readily to forcing, their flowers reminding one of the beauties of May. Mr. Groom will doubtless tell our readers how these Lilacs are forced. We wish the trade and gardeners would pay much more attention to the special preparation of small Lilac bushes for forcing, and not only for forcing in the usual sense, but for flowering in the cool greenhouse, orchard house, and even in windows and passages in the dwelling house.

FLOWERS FROM AYR.—One of the most charming batches of spring flowers, and the freshest we have seen, comes to us from Ayrshire. The size of the Crocuses quite surprises us; they are as large as Tulips. There are early *Rhododendrons* (including the beautiful *R. Nobleanum*, which is so poor near London), rich *Polyanthuses*, bright *Daffodils*, *Hepaticas*, creeping *Forget-me-nots*, *Periwinkles*, *Violets*, *Heaths*, and double *Primroses*. Concerning these and other spring flowers, the sender writes: "Their name is legion. This 21st February, Plum trees in the orchard are ready to burst into bloom, crimson *Rhododendrons* blazing with colour. April and May this year will be dead months for flowers, I fear."

SINGLE CAMELLIAS.—There seems to be some intelligent interest now shown in these. Mr.

Moore sends us from Glasnevin three kinds. The single white is particularly good. If only half the amount of attention be given to raising single Camellias that has been bestowed on raising double sorts it would be likely to repay all concerned. Let no seeker for tests, however, suppose that because we desire good single kinds we object to double ones. Both are wanted.

A NUMBER of single Camellias, evidently from the open air, and other spring flowers have been received without any name or reference.

ORCHIDS.

NOTES ON ORCHIDS IN FLOWER.

THE Orchid houses in Mr. B. S. Williams' nursery, Upper Holloway, are now beginning to recover from the effects of the fogs, of which we have lately had too many in London, and to assume their usual spring-like aspect. Some Orchids are cut down immediately by fogs, while others are not in the least affected by them. Those that seem to withstand fogs best are *Odontoglossums* and other kinds which have flowers of firm texture, though this is by no means an infallible rule, as there is a fine plant here of *Cymbidium Lowianum* which, before the occurrence of fogs, had twenty-two flower-buds on it, and now not one is left. *Cattleyas* have suffered greatly, particularly the *Triana* group, some fine masses of which bear the remains of dozens of decayed blossoms. *Masdevallias*, too, have been greatly injured, and some dozens of blooms of the delicate white *M. towarensis* were quickly destroyed. *Cypripediums* have stood well, as the grand specimens of *C. Boxalli* and others still in perfection admirably show. Amongst Orchids now finely in flower the following are the most noteworthy:—

***Aerides cylindricum*.**—This is one of those Orchids which one seldom sees in flower. It is a lovely plant, totally distinct from any other species with which we are acquainted; indeed, it is so dissimilar to any of the other cultivated *Aerides* that one would scarcely believe that it belonged to the same genus. Its habit of growth reminds one of that of *Vanda teres*, the leaves being cylindrical, about the size of a goose-quill and pointed, and they are sparingly produced on the slender, erect stems. The blossoms, produced in axillary racemes from the upper part of the stems, measure about 1 in. across; the sepals and petals are of a pure pellucid whiteness, but there is a faint blush tinge in the centre. The spur is the most peculiar part of the flower; it is produced about $\frac{3}{4}$ in. in a downward direction parallel with the labellum; it is white, tipped with green. Such flowers one cannot help admiring or the plant on account of its singularly grotesque growth. In this nursery it is grown in the East India house in company with others of the same genus and their allies.

***Cœlogyne ocellata maxima*.**—This is one of the most charming of a lovely tribe of Orchids, though unfortunately too rare to be much known yet, and even the typical plant is by no means common in cultivation. As the varietal name implies, the plant is larger than the original and is much stronger in every way. The flowers, about $\frac{1}{4}$ in. across, are of snowy whiteness, at least as far as the petals and sepals are concerned, but the labellum is heavily blotched with rich orange-yellow encircled with light brown. They are produced in long pendulous racemes for several weeks in succession, and last a long time in perfection both on the plant and in a cut state. A well developed specimen of this Orchid is a charming object when in full flower, as the blossoms are produced so plentifully and in such an elegant manner, interspersed with the rich green foliage and shining bulbs. Another beautiful Orchid which is grown remarkably well in this nursery is *C. Massangeana*, a rather new species, and very handsome, having long pendulous ra-

comes of blossoms. The decayed flower-stems are sufficient indications of what a beautiful object it must have been when in flower. It is grown in a suspended basket, a position which suits the character of its growth better than when grown in the ordinary way.

***Calanthe nivalis*.**—Of this lovely Orchid there is a fine display, and for purity of colour it will compare with any Orchid; indeed, it is one of the very few that possess spotless white blossoms. On this account it is a most valuable plant for cutting from, and the manner in which the blossoms are produced admirably adapts them for that purpose, and its value is enhanced by its flowering at a season when the majority of the other *Calanthes* are over. The only other *Calanthe* in flower in this nursery is *C. Turneri*, a species similar to *nivalis*, except that it has a carmine eye. It is a lovely plant, and admirable for small bouquets, adorning vases, or for similar purposes.

***Odontoglossums*.**—The house devoted to these is highly attractive just now, there being a profusion of bloom, amongst which may be found more elegance of form and delicacy of colour than in most genera. The majority consist of *O. crispum*, than some of which it would be impossible to conceive flowers in every respect more perfect, being large in size, with broad, almost overlapping sepals and petals, beautifully crisped on the margin, and of snowy whiteness, save here and there a spot of chocolate red. The major part of the *crispums*, now in flower, are from one importation received a few months ago, and each plant that unfolds its blossoms seems to be superior to the one that preceded it. It is evident that the collector of this fine consignment got into the right track for obtaining the finest forms. Besides *O. crispum* there are also fine varieties of *O. Anderssonianum*, *O. triumphans*, *O. tripudians*, *O. gloriosum*, and its near relative, *O. odoratum*. The following also struck us as being unusually well represented:—

***O. Chestertonii*.**—This beautiful variety, though surrounded by a host of the finest of the *O. crispum* type, stands out prominently from all the rest on account of the boldness of the markings of the flowers. In size and form an ordinary observer would scarcely distinguish them from a good form of *Alexandra*, but the sepals and petals are heavily blotched with cinnamon-red on a pure white ground, while the labellum is spotted with even a richer tone of red. This plant represents one of the finest forms of *Chestertonii* we have yet seen, but it is remarkable what a wide step there is between such a beautiful form and the original plant named after the collector, Mr. Chesterton.

***O. pardinum*.**—When this species is represented by its finest form it is really a very handsome Orchid, and rarely have we seen it in such a beautiful state as in this collection. One plant of it has extremely long sepals and petals that twist and curl in a singular manner and are of a bright dazzling yellow, richly spotted with chocolate-brown, like a leopard's skin. Another species that we noted as being more than ordinary interest is *O. cristatum*, of which there were some fine plants in suspended pots, thereby showing off their long, pendulous flower-spikes to advantage. It is not what we would call a showy Orchid, but it is neat in growth, quiet in colour, and distinct in form, the very pronounced crest on the labellum being very singular.

W. G.

DISAS OUT-OF-DOORS.

YOUR excellent plate and description of these last week (p. 114) induce me to state that if ever we are to succeed in growing *Disa grandiflora* out-of-doors, even in the most sheltered localities, it will be necessary to study its native habit of growth. I believe in every instance in which it has been planted out on flat or level ground it has failed to become established, although it has flourished in the open air the same year after having been planted in a bog during early summer. In a partially shaded nook below the ground level,

as in a bed of peat shaded by moist rocks, or planted low down beside a brook, pond, or wet ditch, it might perhaps succeed. Being a mountain plant, elevation may have some effect upon its open-air growth; and although it may fail near sea level, it may be induced to live and thrive in the sheltered gullies which occur in many elevated gardens beside mountains. Owing to its existing naturally only in wet watercourses and on wet banks and dripping rocks, any approach to dryness of the soil in which it is planted, even if of but short duration, might naturally be expected to prove fatal to it. Cultivators now and then speak of a white *Disa* (*D. megaceras*), which flowered originally under cultivation two or three years ago with Mr. Elwes, of Cirencester, and subsequently at Glasnevin. This has broad, undulate leaves, and bears from ten to fifteen or more white flowers speckled with lilac-purple. Each blossom has a cowl-like hood subtended by a curved spur, and the flowers are borne *Gladiolus* like on a tall simple scape. It is at present too rare to become general, but is well worth a place in all good collections of these plants. B.

***Dendrobium nobile*.**—The young growths and roots appearing on this plant are due to one or other of the following causes, viz.: Imperfect ripening of the summer's growth in autumn; too short a season of rest; too high a temperature when at rest; or too much water at the root just at the time when the plants commence to show flower. It grows best in a pot or basket, in equal parts of Sphagnum Moss and fibry peat. It must receive warm treatment—65° to 80°—when making its growth in summer, with plenty of moisture at the root and in the atmosphere, keeping the plants close to the glass, but shading them from the sun till the growths are completed; it should then be gradually exposed, so as to stand the full sun through September and October. After this give the plants three months' rest in a temperature of from 50° to 55°, where they may be brought into flower as required.—J. R.

***Cœlogyne cristata Lemoniana*.**—It is now pretty generally known that there are several varieties of the beautiful old *C. cristata*, one of which—the pure white kind (alba)—has gained for itself a remarkable notoriety of late. It is a very lovely plant, but scarcely less charming is Sir Charles Lemon's variety, *Lemoniana*, which is characterised by a pale lemon yellow crest instead of orange yellow, as in the ordinary form. The delicacy of this colour shows up the chaste purity of the flower in a very striking degree, and harmonises beautifully with the deep green foliage and glossy bulbs. It does not seem to be much known, for only this week a first-class certificate was awarded to the plants shown by Messrs. Vetch, in whose nursery at Chelsea it is one of the chief attractions of the Orchid houses.

***Cypripedium Spicerianum*.**—Of this handsome new Lady's Slipper, which has hitherto been so extremely rare, Mr. F. Sander, of St. Albans, has recently imported large quantities of these. The major portion sold at Stevens' rooms last week consisted of about 400 plants, which realised in the aggregate about £1480. The prices of single plants ranged from 16 guineas to 24 guineas. This is the Orchid of which a plant was sold at Stevens' a few weeks since from Mr. Yates' collection for 100 guineas.

***Dendrobium Leechianum*.**—Mr. Swan, of Oakley, Fallowfield, Manchester, sends us a flower of the new hybrid Orchid which has been raised by him. It much resembles *D. Ainsworthii* and *D. splendissimum*, which are both hybrids. The flower is 3 in. across, with white petals and sepals, tipped with rosy purple, and a broad shallow labellum, with a deep rich crimson maroon blotch margined with pure white. A flower of *D. Ains-*

worth was also sent for comparison. Concerning this new Orchid, Mr. Swan writes: "This is the second year I have flowered some of the seedling plants; out of about three dozen raised nearly a dozen have bloomed, and all are as good as the one I now send. The parents are *D. nobile*, the seed bearer, and *D. aureum*, the pollen bearer. Both parents were excellent varieties of their respective species, and the strength and vigour of the parents are certainly inherited by the seedlings, as bulbs 4 in. to 6 in. are now in flower, *D. nobile* was fertilised in January, 1875, and the seed was ripe and sown in June of the same year on the top of a basket of *D. crassinode*. The tiny seedlings were first seen on February, 1876. In about twelve months afterwards they were pricked off; they had very small bulbs, but gradually increased in size, until by the spring of 1880 many were put in single baskets about 2 in. square. In these baskets some bloomed in January and February, 1881, and now again several more are in flower. During last summer many made bulbs 1 ft. in length, which I hope to flower next year."

Angraecum citratum.—This, without doubt, is one of the most charming of all Orchids; the delicacy of the colouring, the neat and elegant growth, and the delicious perfume of the blossoms combine to render it a remarkably beautiful plant. In Messrs. Veitch's nursery, Chelsea, there is to be seen some half a hundred plants that will shortly be in full flower, as they are laden profusely with spikes, some having from three to half-a-dozen on a plant. The closely set ivory white blossoms on the slender arching stalks make this Orchid a pretty object for growing in suspended baskets, pots, or pans; and those who do not possess it would never regret making its acquaintance, as it is not a miffy plant, but one that will not fail to yield an annual crop of bloom. Another rare *Angraecum* is *A. hyaloides* of dwarf growth, bearing a profusion of small pellucid white blossoms on short stalks. It is not so showy as *A. citratum*, but very pretty and interesting.

Odontoglossum blandum.—This little Orchid is one of the most charming of the section of the genus to which it belongs. It is very neat in growth and flower. The latter, which measures about 1 in. across, has sepals and petals copiously spotted with reddish-chocolate on a yellow ground, while the lip, which is large in proportion to the other parts, is white and also spotted. The blossoms, about a dozen together, are thickly set on short spikes that spread out gracefully. It is an Orchid that is invariably much admired, and one, moreover, as easy to manage as any of the cool house group. It is not so plentiful as could be wished, but as it may be increased tolerably rapidly it will not be long before it is widely distributed. It is now in perfection in Messrs. Veitch & Son's nursery, Chelsea.

Zygopetalum crinitum vars.—The original form of this Orchid is handsome enough, but the varieties surpass it in beauty. One called *roseum* has its broad labellum pencilled and lined with rosy-pink on a white ground, while another called *violetum* has markings of a deep rich purple. Both these varieties, as well as the original, are now in flower in Mr. Bull's nursery at Chelsea.

SHORT NOTES—ORCHIDS.

Brassavola glauca oculata.—The ordinary form of this Orchid has flowers of a uniform creamy white, but this Orchid, which is very aptly named *oculata*, has a beautiful carmine centre, which is very conspicuous and pleasing. It is now in flower in Mr. Bull's nursery, Chelsea.

Laelia anceps Hilli.—This is one of the few distinct varieties that have been derived from the beautiful *Laelia anceps*. It is a lovely flower with pure white sepals and petals, and a labellum faintly tipped with delicate rosy pink and marked on the interior of its throat with yellow striped with chocolate. The flower of which the above is a description was sent to Mr. B. S. Williams by Mr. Hill, of Nottingham, after whom it is named.—W. G.

FLOWER GARDEN.

ARCTOTIS GRANDIFLORA.

This fine Composite is most justly praised by Mr. Lynch (p. 110), but he is wrong in supposing that it only exists at Cambridge and Kew. I have grown it for years here, and regularly plant it out in a mixed border. It makes a great show at the end of the summer. It was originally given to me by the late Mr. Augustus Smith, of Tresco Abbey, Isles of Scilly, where it is perfectly hardy. He grew it in large masses, and it is still carefully cultivated by his nephew and successor, Mr. T. A. Dorrien Smith. It was a favourite plant of the late Miss Frances Hope, of Wardie Lodge, Edinburgh, and is, if I am not mistaken, still cared for at the Oxford Botanic Gardens, and at Belgrave by Mr. Gumbleton. We are all much indebted to Mr. Lynch for distributing another fine species, *A. arborescens*. There are some half dozen other fine species at the Cape which used to be in cultivation, but dropped out when the bedding mania came in. They ought to be reintroduced. The only two other species in cultivation, *A. reptans* and *breviscapa*, are weedy and of little worth.

H. HARPER CREWE.

—This is by no means, I am happy to say, so rare a plant as Mr. Lynch asserts it to be in your last issue, as I have now two large bushy plants of it in full bloom in my greenhouse, grown from cuttings received two or three years ago from my friend, the Rev. Harper Crewe, who, I believe, still has plenty of it. The paler flowered and more vigorous growing variety, *A. aspera* var. *arborescens*, well figured in vol. cvi. of the *Botanical Magazine*, tab. 6528, is, I believe, a much scarcer and more rarely met with plant. I am indebted for a fine plant of it now in full bloom in my greenhouse to the kindness of the curator of the Cambridge Botanic Garden, who sent me a small rooted cutting of it about this time last year, saying it made a handsome object planted out in the summer, but with me it hardly bloomed at all while planted out, but grew into a vigorous and bushy plant.—W. E. G.

Pteris scaberula out-of-doors.—I quite agree with Mr. Taplin's remarks (p. 66) as to this Fern thriving best in a cool temperature. Last spring I planted it out on a rockery sheltered only on the north side by a shrubbery and an overhanging Oak tree. Thus situated it did well last summer, and now it has started into fresh growth, even before any of the British or other hardy Ferns. I may add that the plants I have in pots indoors have not as yet begun to grow.—R. W., Salisbury.

Nicotiana affinis.—"Nicotiana" may think himself fortunate in having a stock of well-established *Nicotiana affinis*. Well pinched back and kept in moderate heat, they will bloom luxuriantly by the end of June. If he prefers to keep some of them and plant them out with his Dahlias they will surprise him by the freedom of their growth, their lovely flowers and exquisite fragrance, and they will continue to flower until the frost destroys them.—W. H. CULLINGFORD, 7, Phillimore Gardens.

Hymenophyllum Wilsoni crested.—Last season I came across a crested plant of this filmy Fern, which, although growing in a sort of cave formed by a mountain rivulet, the sides of which were literally carpeted with the ordinary form of this Fern, was the only plant having multifid fronds. Having transferred it to a pot, I placed it under glass with other filmy Ferns, where its long drooping, light green fronds contrast finely with those of the ordinary form, and there have been a source of pleasant surprise to not a few lovers of this interesting class of plants. It is now a handsome specimen with fronds, some 4 in. in length, and bears an unusual quantity of seed. As I am not aware that any *Hymenophyllum* differing from the type has yet been found, I would like to know if any of your readers have fallen in

with a similar plant, or one differing at all from the normal form.—ANGUS D. WEBSTER, Penrhyn, North Wales.

Anemone blanda.—Mr. Harpur Crewe mentioned the other day that having had some difficulty in getting this charming blue *Anemone* to thrive in his garden, he had at length got it to do well in a compost of siftings from a reservoir, forming a loose, porous, sandy soil, in which it thrives most luxuriantly. No doubt in its native mountainous habitats it finds a congenial home in the washings of the mountain ridges, a compost of light gritty nature, in which the minute rootlets run freely and find ample nutriment. Much disappointment often results in connection with *Anemones* from planting them in soil that is cold and stiff in the winter, and which burns in the summer. The plants need more favourable conditions, and when they get them amply repay for the additional trouble involved.—A. D.

Double yellow Wallflower.—The sweet perfumed double yellow Wallflower, to which Mr. Ingram alludes, I have here, but it is not so early, though just coming into bloom. No doubt Mr. Ingram's plants enjoy a more sheltered position. It was given me by Mr. Harpur Crewe several years since with some hybrid kinds, but is the only one that proved hardy enough to stand our winters. It is much dwarfer than the old well-known yellow, flowers freely, and may be easily propagated. I put in cuttings of it in a cool house in September, and get them well rooted and strong by Christmas. No doubt because of its delicate yellow tint and sweet perfume it would be most acceptable for furnishing cut flowers. It is just one of those plants that deserve all needful attention, and with the exception of making up a stock of it little more is required.—A. D., Bedford.

Narcissus monophyllus or Clusii.—I am obliged by the appreciative notice you have taken of the specimen of this Daffodil I sent you, which may truly be called the gem of the season. I am afraid I can lay little claim for any originality in its culture. I plant the bulbs in pots filled with ordinary vegetable mould with a small mixture of sand. When the leaves decay I shift them and keep them safe in my orchard house till November, when they generally begin to show signs of life; then I remove them to the greenhouse to flower. I have never tried them in the open border, as I do not think they would live. It is curious to find it represented in a good woodcut in Gerard's "Herbal," published about 256 years ago. He generally states the native country of the plant, figured, and I was anxious to find the locality from which this *Narcissus* comes, but in this case it was not given.—JOHN FERME, Haddington.

SHORT NOTES—FLOWER.

Cyclamen Coum vernum.—Is it too late this year to hydrise *C. Coum vernum*, so as to increase the size of its charming blossoms?—M. B. A.

Resting Gloxinias.—What is about the proper time to keep *Gloxinia* bulbs at rest? I have some just done flowering, and want to know how long I must keep them at rest before I start them again.—J. H.

Scentless Violets.—I have a fine bed of *Czar Violets* which have flowered well during the autumn and winter, but the flowers have very little sent. What is the reason and remedy?—SIGMA.

Nymphaea pygmaea.—I have made several attempts to obtain this Water Lily from English nurserymen, but have been unsuccessful. Would some of the readers of THE GARDEN who possess it exchange with me for *N. odorata*, or other North American aquatics?—E. D. STURTEVANT, Bordenstown, New Jersey.

Auriculars for exhibition.—Will any one who cultivates the show *Auriculars* favour me with an article on their treatment to fit them for exhibition in spring? when and how to top-dress? the compost to be used? and the proportions of its several constituent parts? An exhaustive article on the subject of *Auricular* culture and general treatment for exhibition would, I feel sure, be very acceptable to amateur growers, though it may appear superfluous to veterans.—R. T. F.

THE PUCCOON AND MAY APPLE.

In the rich moist woods of North America these two nearly allied plants carpet the ground in spring with bloom much in the same way as do our common Daffodils and Bluebells, though neither of them are so showy as many of our gregarious natives. The Puccoon or Bloodroot (*Sanguinaria canadensis*) is, however, a very

might be so constructed as to prevent the liability, to a considerable extent, of soils becoming amalgamated—so varied mechanically and chemically, and at the same time so considered as to shade, that the right soil and position for almost any plant might be found. An apparent mistake (which can only be rectified by experience) the compilers of books and catalogues, from which our information is obtained, seem to have made

place, Gladioli have a great aversion to strong manures, especially in the early part of the season. Late planting in spring will also prevent many bulbs not thoroughly harvested and ripened, from starting into growth so vigorously as they would otherwise do. But seeing that there are some cultivators like "W. J. M.," who have no cause of complaint, it seems after all only a question of soil or climate, or what is probably more likely, the indifferent way in which bulbs are ripened. The plan that "W. J. M." adopts is a most excellent one, and is, I think, altogether new in practice, for I have not heard or read before of anyone placing the corns in dry sand to ripen before the foliage is cut off. If the bulbs are in a satisfactory condition when they are lifted from the ground, and when stored as "W. J. M." directs, I think it will do a great deal to prevent failure in cases where it has previously occurred.

J. C. CLARKE.

Hardy Heaths.—We have a collection of these in which the shades of colour vary from bright scarlet to white. Many of them are now in flower, and no class of plants could be more ornamental. They are dotted on a bed of *Sedum glaucum*, intermixed with Snowdrops, Violets, Polyanthus, and a number of other plants now flowering profusely. The Heaths stand out boldly among the others, having plenty of room to show off to advantage their neat compact forms. In a cut state these Heaths do excellent service, and by thinning them judiciously no harm is done. On the contrary, they are rather benefited, as the

The May Apple (*Podophyllum peltatum*).

pretty plant, possessing an amount of delicacy rarely to be seen in hardy flowers. Being pure white, except the central tuft of golden stamens, they have a beautiful effect when seen in a mass and contrast finely with most other spring flowers. It is a hardy perennial, growing from 6 in. to 9 in. high, and has kidney-shaped leaves of a greyish tint and a creeping rootstock, which, when broken, emits a blood-red juice; hence its popular name. It flowers with us about the beginning of April, but the flowers only expand in fine sunny weather. The variety *grandiflora* has large blossoms, but is not often met with.

THE MAY APPLE (*Podophyllum peltatum*) is likewise a very common plant in the shady, humid woods in North America. Like the Puccoon, it is a perennial herb, having large handsome shield-like foliage, borne boldly on slender erect stalks, which give it a distinct and fine appearance in spring. The flowers, which are white, are not very attractive, but they are succeeded in May by oval yellowish fruits called wild Lemons.

These two plants are capital subjects for a moist, shady border of peaty soil. They may be propagated freely by division.

W. G.

SOIL FOR ALPINE PLANTS.

WHILE still maintaining that the proper soils for growing alpine plants should be our first consideration, I quite agree with what Mr. Wood has stated in reference to this subject (p. 91). There are many important matters to be considered in connection therewith; and of these, climate and altitude on the one hand, and drainage on the other, have an important effect. Let us imitate Nature as we will, it is impossible, as Mr. Wood says, to find substitutes for the various mechanical conditions of the soil, or alpine snows in the higher regions; nevertheless, Nature is our safest guide. I, too, agree with Mr. Wood that it is only approximately we can determine the chemical composition of a soil; this, however, I should think enough. I quite admit the difficulty there must be, in the case of a garden for the cultivation of alpine plants being made up of a series of beds or pockets, in preventing the soils, at least chemically, from intermingling. I think a properly made rock garden

is this: They have apparently concluded that all plants found peculiar to a certain soil must be grown thereon, and that all plants not found on limestone must be lime-haters. According to recent communications to THE GARDEN this is not always so; that while they are found in Nature in a soil free from lime, they may be grown in a soil containing it. It may, too, be concluded that all plants found in Nature on lime do not necessarily need it for their existence, although they succeed better with it than without it.

T. D. HATFIELD.

DEGENERATION OF GLADIOLI.

LIKE "W. J. M." (p. 3), I may state that I do not find Gladioli to degenerate, but that unfavourable conditions affect them I am willing to admit. If they degenerate, how is it that I have in my collection varieties that produce as perfect flowers, and have as sound corns as they had a dozen years ago? I do not believe in degeneration, but I find it sometimes a difficult matter to please Gladioli in all respects. These last two seasons have not been favourable for them, although I cannot say why. If the vigour of some varieties remain unimpaired after a lapse of ten or twelve years, I cannot see how the failure of other varieties can be called degeneration. Mr. Kelway, I know, entertains the same opinion regarding this matter as myself; for I have on more than one occasion discussed it with him. He has pointed out to me varieties in the best possible health that he has had under cultivation for nearly twenty years. Mr. Kelway, however, believes in exhaustion or loss of vital power, but I have not heard him attempt to explain his views as to its cause, further than that an unsuitable soil or climate or cold unless weather will produce it. Gladioli fail from the loss of vital power caused by some unfavourable condition under which the plants are grown. If from any cause a plant ripens its foliage prematurely—that is to say any time before the middle of October—that plant is not in good health, and although the corn from such a plant may be to all appearance sound, I believe it will not recover its full vigour, although the produce from it may do so if placed under conditions suitable to promote vigorous growth. The question, however, still remains, What is the cause of failure? Well, in the first

The Puccoon (*Sanguinaria canadensis*).

shoots left grow more vigorously, and are in better flowering condition the following season. We find them to do well in light, sandy loam, but they succeed all the better if a little sandy peat or

leaf-mould is mixed with it. For margins to American shrubs they are very useful, and if one wished to decorate their flower beds and borders in a more formal style there are colours enough among hardy Heaths for the purpose. They are handsome even when out of flower, but they can be removed to the store grounds during the summer months to make room for other plants of a more showy character.—M. T.

GARDEN STRUCTURES.

NURSERYMEN'S PLANT HOUSES.

It is evident that there is a wide divergence between architects and practical growers as to what constitutes a good plant house. Growers for market are the architects of their own houses, which are constructed to grow plants well and profitably; whereas the professional architect would make the growth and welfare of plants subservient to the house; indeed, he has certain notions about elevation and styles of building that would not at all fit in with practical plant growing. Mr. Fawkes tells a correspondent of *THE GARDEN*, who asks for information as to the best method of erecting plant houses, that if he builds his houses side by side he will get no bottom or side ventilation. Well, the market plant growers, and not these alone, but many other practical men, have long solved the problem as to side ventilation by dispensing with it altogether, and literally millions of well-grown plants are got out of houses that have no side ventilation. Let Mr. Fawkes just run down to Swanley and observe the cheap and simple, yet solid, way in which Mr. Cannell puts up the houses wherein he grows his vast quantities of plants of all kinds so well. Why, there he will see not four houses in a block, but fourteen, all 100 ft. in length and 12 ft. in width, side by side, so that there is not a particle of side ventilation given, not even in the outside houses. There is also another block of six 100-ft. houses near that just adverted to, and this block will soon be expanded into fourteen, also all built on precisely the same pattern. Mr. Cannell is his own architect and builder, and any one who may contemplate the erection of plant houses for trade purposes would do well to inspect the Swanley houses first. Though built side by side, the eaves do not rest upon the same party wall, but upon separate walls of good brickwork and about 2½ ft. in height. These have between them an interval of 18 in., which is filled with chalk, well rammed and made solid, and upon which, finally after the houses are completed comes a surface of asphalt, with falls to two tanks that are made in each house. In this way gutters are dispensed with. All rain water is utilised, and there is also some space left between each roof that it is easy to repair, clean, or paint, as may be desired. Of course all the houses are span-roofed, and are ventilated throughout on one side by means of sliding sashes fixed at intervals along the top.

Ventilation.—From doors at either end only comes the lower air, and these on fair days are fixed either fully or partly open. It is well known that ample ventilation may be obtained solely through top lights, for the cooler air will force its way into the house just as long as that within is warmer and lighter than that outside. In this way ample change of air is obtained without the evil of a cold current, a very common and obnoxious evil where there is side and top ventilators both open. On windy days it is possible that even downward currents of air may come with too much force or be too cold, but both these forces may be moderated if pieces of Frigidomo or other very coarse woollen material be secured under the openings; indeed, apertures of all kinds for ventilating purposes would be rendered far less obnoxious if some such moderators were fixed to them. In the case of nearly all of Mr. Cannell's plant houses, walls 2 ft. in height are run along on either side of the centre path, and the beds are made up of chalk, surfaced over with 2 in. of fine ashes. Upon this the plants stand, and no worms ever trouble them, nor stagnant water.

In some instances open trellis stages are fixed, so that the spaces beneath may be utilised for the stowage of Begonias and numerous other things for the winter. The grand lots of Pelargoniums, double and single, so superbly in bloom all the winter, and the thousands of beautiful Chinese Primroses are grown in these houses and on these chalk stages. The open trellis stages are found best for the large-flowered Pelargoniums.

Tanks and wood preservatives.—In every house there are practically four tanks of water accessible, although only two are left open—that is, one on either side and at either end. The openings are covered at will with a slab, on which plants stand if needful. These tanks are made of 9-in. brickwork, and are well faced with cement, so as to be perfectly water-tight, and run under the halves of two houses. When needed they can be filled from the West Kent Company's mains. Mr. Cannell is a great believer in the efficacy of creosote and of gas tar as wood preservatives. All the plates are well coated with tar before being laid on the brickwork, and all the rafters or bars have the bottom ends dipped to a depth of 13 in. into a creosote tank, which is fixed over a furnace, and is thus used hot. Into this tank go also all doors and sliding sashes, so that all parts most likely to be subjected to wet or internal moisture get a thorough dressing. That the creosote is a wonderful preservative agent there can be no doubt, and indeed Mr. Cannell mentions that the local Hop growers bring their Hop poles to his tank to have the bottom ends immersed, and these will be found lying about years after the poles themselves have decayed. In a year or two this black-looking dressing will take paint as other wood will. Architects would doubtless object to the blackened appearance which the wood presents, and it would not look very æsthetic, even if serviceable, but houses should not only be built to grow plants in, but also to endure, and no doubt these Swanley erections will endure for a long time. The houses are glazed with 24-in. by 16-in. glass, and every fourth bar is extra strong, and it and its fellows are firmly tied together by some ornamental ironwork, the only bit of art workmanship which Mr. Cannell has permitted to be associated with his erections.

Heating.—Mr. Cannell is also his own engineer, and having the most entire confidence in his own designs, uses only his excellent Circular tor boilers, putting them down in duplicate, so that in the event of one failing he has another boiler ready at once to take its place. In every house the same method of heating is adopted, and it is one that proceeds, as many things Mr. Cannell does, on lines the reverse of those usually adopted. His flows are the lowest and his returns the highest; in fact, the flows run along the floor of the path and on either side, whilst his returns are carried up at the end and are brought back in the form of 2-in. or 3-in. pipes, just as more or less heat is wanted, just over the plants, and fixed to the bars, and about 12 in. from the walls. Upon this top-heat Mr. Cannell sets the utmost store, especially with reference to winter flowering plants. It keeps the air about the plants dry and, not least, the glass also. Whilst the warmth from the pipes laid in the path ascends perpendicularly, that from the top-side pipes diffuses itself about the sides of the houses, and is very efficacious. Pipes running along the top of the side walls would perhaps be of more service, but then they would occupy too much valuable space. It is also obvious that houses built in blocks, as these are, present but a moderate area externally exposed to cold, and much less heating power is required than would be the case in some architects' houses. To get rid as completely as possible of the sooty products of combustion, Mr. Cannell has constructed an underground smoke shaft to each block of boilers, and thus it is carried up a chimney erected on rising ground and quite clear of the houses. Some 700 ft. of wood frames are also heated by means of a 2-in. flow and 1-in. return pipe fixed the former above the plants on the lower side of the frame, and the latter within 12 in. of the top side. This heating

power is found enough to exclude the severest frost, and save much trouble and expense, whilst the plants are drier and far more healthy. Altogether to the observant visitor there is much to be gathered at Swanley, even though the houses be not architects' houses. A. D.

—“**Fenman**” has been so well answered (p. 76) about the heating arrangement that I cannot well add to that department, but with respect to the erection of the houses themselves, Mr. Fawkes, in his anxiety for that dreadful bugbear to many people (bottom ventilation) forgets that one of the greatest considerations is to be economy, which is not secured by having two extra walls and side frames with all opening lights, adding as they would do as nearly as possible 20 per cent. to the cost besides taking up much useful space; while as to efficiency, he ignores—as he has done in the impartial book to which he refers—the only method of cheap and simple construction that admits of perfect ventilation low down, for such an arrangement of houses as “**Fenman**” describes; I mean the roofs and ventilators invented by Sir Joseph Paxton, which are largely used for such purposes as here named. As to the 18-in. gutter, that is unnecessary, whatever description of roof is adopted, as it will cost as little and be more efficient to arrange iron straps or brackets across a few of the rafters that are opposite each other, and place on them two or three narrow boards or laths; these will prevent the gutters being blocked with snow or leaves, leaving a clear water-course underneath and a firm pathway above for the workmen, at all times, without risk of damage to the gutters.—B. W. WARRIEST.

WASTE OF FUEL.

FUEL constitutes one of the largest items in garden expenditure, and one often complained of by owners of gardens. It prevents many from enjoying the floral charms of a greenhouse during the dull winter months; therefore, anything that can be said or done to lessen this evil will be a decided gain to horticulture. The main thing that affects the amateur is not being able, without much expense, to heat one or two small houses with a boiler and hot-water pipes. This ought not to happen when we take into consideration the large amount of house-fire refuse that might be burned in a suitable boiler furnace, and which with just a small quantity of coal or coke might keep up a steady fire. It has often occurred to me that many a small furnace might be so placed at the end of a double lean-to house (one north, the other south), that the south one might be heated with pipes from the boiler, and that facing the north by the smoke flue; or, instead of having a glass structure on the north, it might be a shed used for growing Mushrooms, and forcing Sea-kale and Rhubarb. Indeed, there are many uses to which a north house so constructed might be put. In an establishment in Bucks, where I once was, we had an upright tubular boiler so fixed that it had two smoke shafts, one close to the boiler, the other at the end of the Mushroom house. A flue placed as above described ran through the Mushroom house, and when heat was wanted the damper was put in to shut up the upright shaft and turn the smoke into the flue. Either way I could never perceive any difference in the burning of the fire. Well I remember, however, the fine Rhubarb and Sea-kale that came out of that house all through the winter, and the crops of Mushrooms were equally good.

With respect to the different forms of boiler I need say nothing, as most people have some special one they like. The principal thing is putting the right boiler in the right place, and proper setting of the same. Some boilers are adapted for one purpose, some another; some are not suitable for open stoke-holes or exposed situations, yet one may see them so placed. I am well acquainted with a place in which one is set in a small stoke-hole; the form is an upright. The door of the stoke-hole is almost level with the bottom of the boiler, and only about 3 ft. from it. Three parts of this boiler are exposed or without any casing

of bricks, and the chimney is almost close over the boiler, which makes the draft very strong; therefore, a large amount of heat goes up the chimney and is lost. This furnace is not provided with an ash-pit door, which all furnaces should be under such circumstances. Just fancy the waste of fuel that takes place on a cold night when there is, say 30° of frost, and the water is boiling, which it has to be in this case to keep the frost out. This is the wrong boiler in the wrong place. Whatever form of boiler is used it should be so constructed that every particle of heat is utilised instead of going up the chimney. All will agree that a pound of fuel is only capable of producing so much heat, and this should not be wasted. There can be no doubt that every house should have pipes enough and a boiler large enough to keep up the temperature needed without making them very hot or driving the fire more than is necessary, or there will be waste of both fuel and labour.

J. C. F.

INDOOR GARDEN.

POTTING AND WATERING FERNS.

As a rule we only pot our Ferns once in two years. When established they do not like being disturbed; sometimes they may even do without repotting for three or four seasons, but about this time every one of them should be turned out of their pots, and if everything be right, the drainage and every inch of the outer part of the ball will be one mass of fibres. If worms have been running amongst the roots, and the drainage is choked up with small particles of soil, with no roots in it, then success need not be expected if they are allowed to remain in that condition. The drainage at least must be removed, and clean material and a clean pot substituted, but in most cases of the kind it is best to repot altogether, and in doing this all bad soil and decayed roots should be removed. This will allow the plant to be replaced in a pot about the same size as that from which it came, and I would not use any much larger, as the roots do not require much space, especially when reduced. If plants in large pots are required it is those well furnished with roots that should be transferred.

A mixture of rough loam, rough peat, and plenty of sand suits all kinds of Ferns well. In potting the finest of the mixture should never be put at the bottom. It must be on the top if anywhere, but very fine material should not be used. What soil requires to be put at the bottom should be placed carefully over the crooks and be firmly rammed down before the plant is put in, and when space is limited between the old ball and the sides of the pot it may be a difficult matter to get rough pieces filled in, but they should be pressed firmly down with a piece of stick, and care should be taken that no little vacancies are left. After potting, one thorough watering at the root should be given, and the soil will not become dry again for some days. By one watering I, however, mean more than once filling the space left for this purpose. After the first quantity has soaked in, another should be given, and if it is thought that this may not be enough to wet all parts of the soil, more may be applied. Once the whole of the material has become thoroughly wet the roots are sure to go on well, but if only the surface soil is wetted, growth will neither begin nor continue satisfactorily.

Ferns whose fronds have become ragged and discoloured should be cut down to the crown. Plants which are not to be repotted should be treated in this way before they have begun to grow, and those which are repotted should be cut over when that operation is being performed. It is astonishing how much Ferns may be benefited by weak doses of liquid manure given twice a week or so. Soot water and cow manure water are both good, and when these are used—especially in the case of plants which have not been repotted—the result is most satisfactory. CAMBRIAN.

Cotyledons for winter decoration.—For the decoration of the conservatory in winter

several species of these may be recommended. In the succulent house at Kew there is a nice display of flowers of these plants, two of which, viz., *C. atropurpurea* and *C. fulgens*, are especially worthy of mention. The long erect spikes of brightly coloured flowers which are produced by plants only twelve months old are very attractive, and may be used in a cut state for decorative purposes with excellent effect. Plants of this description which are so very easily managed, and always yield an abundance of flower at a time when the smallest petal is valuable, flowers, too, so distinct from what are to be had at this time of the year, must be regarded as every gardener's friend. During summer these *Cotyledons*, or *Echeverias* as they are generally called, may be grown as bedding plants. In the autumn they should be potted in a light rich soil and placed in a warm, dry house; a shelf in an intermediate house would answer, where, if sparingly watered, they will soon throw up their beautiful spikes, and are then ready for the conservatory.—B.

AKEBIA QUINATA.

THIS is a handsome, and, moreover, a singular climbing shrub, worthy of a place in all good gardens. It is a slender-branched plant, having pret-



Akebia quinata

tily divided leaves and bearing clusters of flowers of two kinds produced on the same bunch, the upper ones, the pollen bearers, being much smaller than the lower or seed-bearing flowers. The colour is a deep vinous red, not very showy, but owing to the blossoms being produced in great numbers in spring the plant is very attractive. It is one of the numerous introductions of the late Robert Fortune, who found it in Chusan festooning the hedges and trees on the hill sides. It is not perfectly hardy, but nearly so, for in the late Joad's garden, at Wimbledon, it grew against a south wall mingled with the dense growth of a *Ceanothus*. Every year it used to flower freely, and was quite uninjured during the late severe winters. It is, however, better in a greenhouse, where it thrives perfectly under the simplest mode of treatment, merely requiring to be planted out in a border of good soil and its branches trained and kept clean. Such is the treatment it receives in the greenhouse at Kew, where there is one of the finest plants of it in the country, and which annually bears a fine crop of sweet-scented flowers. W. G.

Torenia Fournieri.—This is an annual which I can specially recommend for pot culture. Its blooms are not evanescent, as some are, but lasting, and conspicuous even among the most choice of indoor plants. Its habit is very dwarf, bushy, and compact; and the main shoots, which grow erect, branch out freely, and bear great quantities of lovely blue and white blossoms all the summer

through. To have them early, seed should be sown at once in light rich soil, and then placed in heat, where, if kept moist, they soon germinate, and the plants become strong and large enough for pricking out or potting off. If treated in the latter way, they should be placed singly in small pots, and shifted on into others later on; 6-in. pots are quite large enough, as, when well fed, little room is required. Being somewhat tender, it requires the heat of an intermediate house or cool stove till the end of May or June, after which it will succeed well in the temperature of a conservatory. The soil that suits it best is a mixture of leaf-mould and loam with a little old Mushroom or other light decomposed manure to afford the requisite stimulus. Potted in a mixture of this kind, the plants grow rapidly, and produce a profusion of flowers.—S. D.

LILY OF THE VALLEY THE SECOND YEAR.

THE fitness of Lily of the Valley for forcing the second year depends entirely on the way in which it is treated and the time of year when it is got into bloom, as plants that are not started to force till now are in a much better position for recovering their strength than others that have been subjected to heat at an earlier period. Some time ago we had a number of pots that were forced annually and used for the embellishment of the greenhouse or conservatory, where they stood till the flowers faded, when they were removed to cold pits or frames where they were taken care of and encouraged to complete their growth and ripen off properly, points of the greatest importance, for if the leaves are not preserved in a fresh, healthy state the crowns do not attain sufficient strength and size to form and throw up their blooms. If pots of Lily of the Valley are expected to do this yearly they must be managed in the manner referred to, and be liberally fed with liquid manure and top-dressings, but as they are so much less trouble planted out in beds or just close under the shady side of a wall, it is best to treat them in that way, as they can be dug up and forced in large clumps in boxes, or the finest crowns may be picked out and a dozen or so of them placed in a 5-in. or 6-in. pot. Treated in this fashion they are quite equal to imported roots, that is, if well grown, but to get them fine they must have rich soil and be replanted every three or four years. The course we pursue is to have three beds, and every third year we take up one for forcing, when we go over the roots and pick out all the strongest, which are laid in and buried with soil to be drawn from as wanted. The others are then pulled apart and a fresh plantation made of them, which is done in this manner: We mark out a bed 3 ft. wide between our young Apple trees, and having skimmed out about 3 in. of soil and thrown it right and left, we put on a heavy coating of manure and slightly fork it in, and then distribute the roots regularly over the surface, after which the soil is returned to its former position to cover the crowns. A raking down with a wooden rake completes the work and leaves all neat and tidy. The older beds we depend on for picking flowers from late, and in seasons when they escape injury from frost we obtain an abundant supply. We also have a narrow strip of these charming Lilies under a north wall, where they seem to hug the bricks as it were, and cling to them closely for the sake of the moisture they supply. S. D.

Holborn Gem Primula.—This is a very distinct and pleasing lavender-blue, and in a clear light bright and beautiful. Two things about it give to its future special promise. The foliage is of the deep-hued kind, and because of this deepened colour in the flowers may be looked for. Still, farther, the form is now well set, so that out of many hundreds of seedlings not one comes other than true to form. The habit of this kind is

as good as is that of any other, and the flowers are large, well fringed, stout, and as good at all points as any others. So that it only needs a little more deepening of colour to make it one of the most distinctive and novel *Primulas* we have. Something may be done in this way, perhaps, by judicious crossing, but the rich coloured reds, whilst lending depth to the blue, may but throw it back into the purple section, and thus spoil what is a novel and distinctive start. It is most probable that careful selection of the deepest coloured flowers, and the inter-crossing of these will be productive of the best results. Some plants have this season produced blooms specially marked by deeper tints. In matters of this kind progress is not made by leaps and bounds. A succession of deeper shades, though each one may seem to be ever so trivial, yet if spread over half a dozen seasons will present a great advance, and there can be no doubt this is what the Holborn Gem *Primrose* will do until we shall see one of its progeny as rich comparatively as the Swanley red kind eclipses the older carmine.—A. D.

Treatment of Sonerilas.—Whether it be owing to the mildness of the present season, or the heavy fogs we have experienced, or, as it may really be, the fault of our treatment, I cannot say; but we have lost every one of our *Sonerilas*. Plants which during the summer grow almost anyhow, and flower like *Daisies*, are not generally difficult to keep through the winter. Are *Sonerilas* annuals? If so, then they may be expected to disappear after flowering. I am inclined to believe that if one wishes to ensure a stock for the second year, a few plants should be prevented from flowering, or a batch of cuttings should be struck in the autumn, which would amount to the same thing. *Sonerilas* are grown only for their beautifully marked foliage, their flowering propensities being either unrecognized or neglected, and yet beautiful as their foliage is it is quite equalled if not surpassed by that of their freely produced flowers—freely produced under certain conditions. *Sonerilas* thrive in a moist, shaded, warm position, and should be allowed as much sun-light as possible. The prettiest plants I have seen were grown in pans, hanging quite close to the glass in a moist, unshaded stove. Each pan contained half a dozen plants which were in 3-in. pots, and placed in the pan with *Sphagnum Moss* about them. Thus treated the growth made was sturdy, and the foliage well “finished,” but it was the extraordinary production of bloom consequent on this treatment that proved its success, the whole pan looking like a closely packed bouquet of bright pink flowers, the latter hanging over the sides of the pan so as to almost cover it. The flowers are developed in November.—B.

SHORT NOTES—INDOOR.

Seedling Amaryllises (G. N.).—These are very variable as to time of flowering, but if grown on vigorously some may flower the third season, many more the next, while others may take much longer.—T.

Strophanthus dichotomus.—This has no claim to showiness. The flowers are of a rather dull yellow, mottled and streaked with pink in the tube. The shred-like elongations of the segments of the corolla are, however, interesting.—J. W.

Climbers for roof of old winery.—A. L. (p. 109).—Plant the red and white *Lapageria*, also *Marchal Niel*, *Belle Lyonnette*, and Climbing *Devoniensis* *Roses* worked on the *Briar*. *Clematis indivisa lobata* is also well worthy of a place, and so is *Lonicera sempervirens* minor. *Camellias* will do well on the back wall; but why not put in a flow and return hot-water pipe, and plant the best greenhouse climbers?—W. C.

Jasminum gracillimum.—This is one of the best winter-flowering stove plants that has been recently introduced. With a sufficiently compact, yet free, disposition of growth, it combines a profuse blooming habit, every shoot producing tufts of its white fragrant flowers, which are easily induced to open in the dead of winter—an assemblage of desirable properties not often met with in the same plant, and as such can scarcely fail to insure its becoming a favourite with all who have a warm house where to grow it.—T. B.

ORNAMENTAL GARDENING.

I FEEL sure that “C. D.’s” remarks on lake formation will be generally appreciated, and I hope that he, or some other qualified correspondent, will go a little further into the matter of garden ornamentation. This branch of horticulture is understood by but few, and judging from the miserable way in which planting is carried out in many places, especially in those of the smaller class, the general principles of landscape art seem not to be understood at all. For instance, it is very common to see lawns in front of dwelling houses dotted all over with trees, perhaps equidistant, shutting out what good views there may be about the place. Sometimes among large trees flower beds are interspersed, in other cases, plantations of dwarf shrubs surround their giant trunks, instead of being allowed to stand clear on the Grass. Rockwork (of a very questionable character sometimes) may be seen in positions which should have been the last to have been disguised by such makeshifts. Water, too, in the shape of a scroll, circle, or some very grotesque form, may be seen in grounds where no such thing should have been tolerated. Islands placed in lakes are often rather deformities than ornaments, especially when in the shape of a cheese and set in the centre. It is generally at the mouths of rivers where islands are to be found, and when placed in such positions artificially they tend to make the water appear larger than it really is. Lakes designed by Mr. Marnock leave one in a dilemma as to whether they were placed there by Nature or art; for example, the beautiful lake at Eynsham Hall, in Oxfordshire, is in one of those happy positions where nothing is left to be desired. The lawn in front of the mansion is also the work of that master hand—no “dotting” or crowding there, but the view carried as far as circumstances will allow. Like the lake, it is a monument of Mr. Marnock’s skill. M. T.

LABELS SUPERSEDED.

THE question, What is the best label? is one continually cropping up, and appears to be no nearer a solution now than it was twenty years ago. I have tried wooden labels, zinc, lead, and almost all kinds procurable; but the non-breakable do break, and the indelible inks become defaced, and what with getting lost or otherwise out of gear, the label question alone will keep a gardener with large collections of trees, shrubs, plants, &c., pretty well employed. Now, after some lengthened trial, I find the following plan a great assistance in minimising the use of labels as far as possible, so that there shall be fewer to get lost or defaced, viz: Take a large sheet of cardboard and on it draw a rough sketch of the garden, orchard, or whatever it may be, and mark all the permanent subjects on it in ink. For example, rows of trees, either of separate sorts or all of one sort may be marked so that they can be seen at a glance. We have lately planted dwarf Apples and marked them in this way, also rows of pyramid Pears, quarters of bush fruits, with so many rows of each kind, beginning from east to west or north to south, as the case may be. Beds of Strawberries or anything that occupies the same site for any length of time may be plainly marked in ink, and the rotation crops of vegetables in pencil, so that they can be annually changed. Under glass this plan is equally useful. Where it is employed there is no danger of cutting the bark with ties or fear of getting varieties mixed, as often happens when labels of any kind are relied on. In the case of vines, a ground plan may be made and the vines marked in the positions in which they are planted. Peaches, Plums, Figs, or any other kind of indoor permanent crop, or plants, such as climbers or *Camellias*, may all be marked in the same way. In the flower garden, beds of *Roses*, shrubs, or trees may be indicated on the ground plan, and endless confusion be thereby avoided. When planted at wide intervals the names may be marked in full, but in beds, such as those of

Roses, numbers may be placed on the spots the plants occupy, and the name corresponding with the number marked on the margin. I am aware that labels cannot be altogether dispensed with, nor is it necessary or desirable that they should be, for to visitors they give to a garden additional interest. But even where the best system of labelling ever invented is in full practice, it is still desirable to have the important occupants of a garden marked on a plan in the way in which I have just pointed out. JAMES GROOM.

GARDEN FLORA.

PLATE CCCXXV.—*NYMPHÆA TUBEROSA*.*

It is not generally known that there exists in cultivation a *Water Lily* similar in some respects to our native species, but distinct in many important particulars; this is *N. tuberosa*, of which the annexed plate is a good representation. It is a native of North America, where it inhabits lakes and slow-running rivers from Oneida Lake to Michigan, Illinois, and probably the Southern States. It differs from *N. alba* mainly in having tuberous rootstocks, which become detached from the parent plant and form distinct individuals; also in its leaves being invariably borne above the surface of the water. It therefore differs from the common *Water Lily* in the same manner as the North American *Nuphar advena* differs from our native *N. lutea*. Unlike the other North American *Nymphaea* (*N. odorata*), the flowers never assume a rosy hue, and the blossoms are scentless. It cannot, however, be doubted that it is a very handsome plant, and one that should receive the attention of cultivators, as it is as hardy as the common *N. alba* and spreads as freely. It has been in cultivation at Kew for some years, and flowers annually at the same time as *N. alba*, *N. odorata*, and others. Though not such a valuable addition to hardy water plants as the rose coloured variety of *N. alba* (figured in *THE GARDEN*, Vol. XV., p. 516), this is nevertheless a most desirable plant. Other kinds in cultivation at Kew that are not commonly grown are *N. nitida*, a Siberian species; *N. candida*, a Bohemian variety of *N. alba*; *N. flava*, a yellow flowered species, also from North America, and *N. pygmaea*, the smallest of all, a native of China. *N. odorata* and its variety minor are beautiful plants now becoming more known and cultivated than they were, though not half so much so as they deserve to be.

CULTURE AND POSITION.—Wherever ornamental water exists *Water Lilies* and other hardy aquatics should be grown. What, for example, can produce a finer effect than bold spreading masses of our queenly *Water Lily* studded profusely with lovely white blossoms? *Water Lilies* are seen to greatest advantage in groups a few yards from the margin of the water, though they look well no matter where they are placed, but it should be remembered that small groups and individual plants always produce finer foliage and flowers than when crowded. If properly planted at the outset no further trouble is needed. If convenient the water should be drained off and hillocks made of good loam, manure, and sand well mixed together. On these the plants should be placed, so as to be about 1 ft. or so below the surface of the water. Stones should be piled around the plants to keep them in their places. If the water cannot be lowered the best way is to place the plants in large baskets of soil and sink them to the bottom, but the water above the plants should not exceed 2 ft. W. G.



GARDEN DESTROYERS.

THE SPRUCE GALL APHIS.

(CHERMES ABIETIS).

ON Spruce Firs, and particularly on young specimens, excrescences may be often noticed on the young shoots, which very much resemble small Fir cones, and, no doubt, would usually be taken for them were it not that the shoots generally pass right through them. These formations are really galls made by insects very nearly allied to the common aphides. These insects are very injurious to the trees which they infest, and their attacks are all the more annoying when specimen trees are their victims. Whenever any of these galls are found on a Spruce Fir they should be immediately removed. In the case of a tree growing near others of the same kind which is so large that all the galls cannot be got at, it is by far the best plan to cut it down at once and burn all the small branches, as one tree may infest any number of others, and if allowed to remain it is sure now to perish from the constant draining off of its juices by these insects. Young trees which are not so large as to prevent anyone from reaching their upper branches should be thoroughly looked over, and the galls carefully cut off and destroyed. They should not be thrown on the ground, for if the insects within

a solitary female, or queen wasp. The founder survives the winter probably in some sheltered place on the bark. In the spring she selects a bud, which she pierces with her beak or sucker. This puncture and the subsequent drawing off of the sap causes an unusual growth of the bud at that part. She begins without moving to lay her eggs in April or May; they are very numerous, sometimes amounting to 200, and of a yellowish green colour, and are laid in a mass mixed with some of the downy covering of the mother, who, having deposited all her eggs, dies. The young larvae, which are now hatched from the eggs, at once spread themselves over the gall, and commence feeding by piercing it and sucking the juices. This promotes an active growth in the gall, and eventually they are completely buried in the bases of the leaves, which by this time have become most curiously malformed, and entirely surround them. In about a month or six weeks the gall has attained its full size; it then becomes harder, and the cells splitting open, the insects walk out. The skins of the pupæ crack, and the perfect insects, which are now winged, appear. The females of this brood fly, or are blown to various parts of the tree, and to other trees where they lay their eggs, which are much fewer in number than those laid by the founder of the colony, only amounting to about twenty. These females die as soon as they have deposited their eggs, the larvae from which become the females, which the following spring are the founders of fresh colonies.

From the habits of these insects it will easily be seen that if left undisturbed they will soon over-run trees, and may cause them very serious injuries. The genus *Chermes* contains several species, and belongs to the family Aphidideæ, of which the common green-fly and American blight are also members; it is one of the most interesting families of insects to any one engaged in the cultivation of plants, as to it belong the host of various species of aphides, from the attacks of some of which few kinds of plants are really exempt, and which at times appear in such swarms as to quite baffle the horticulturist. *Chermes abietis* is by no means an uncommon insect it appears to thrive best in places where trees are rather crowded together, but I have often observed them on young trees in open situations. The winged insects are scarcely one-tenth of an inch in length, and measure about three-tenths of an inch across the expanded wings; they are of a yellow, or reddish yellow, colour, with dark brown eyes. The head is furnished with a pair of five-jointed antennæ; the upper wings have only three oblique veins in each, and the lower pair have only one; their bodies are partly covered with a cotton-like substance. The wingless females are about one-tenth of an inch in length, oval in shape, and varying in colour from green to purple; they are lightly covered with a white cottony down. The larvae are very much like the wingless females (only they are smaller), and so are the pupæ, except those which will develop into winged insects, which may be known by their rudimentary wings.

G. S. S.

MORE ABOUT WORMS.

I DOUBT if you will think the following worth your notice, but having in my garden a small lawn and upon it an old Ivy-clad common Acacia tree, and underneath, as elsewhere, numerous worm-casts, I became interested in watching their changes and progress, and in doing so found that just in proportion as the days became shorter, the nights longer and cooler, and the surface of the earth gradually more moist, did these casts extend both in number and size shortly after the fall of the leaf. Underneath and around the lo-

cality of the old tree the worms commenced and continued for some weeks to collect the long, straight, and bare leaf-stalks into innumerable little groups. These leafless stalks being 6 in. or 9 in. in length were drawn endways into the worm holes 2 in., 3 in., or more in depth, and in close and compact tufts of ten or twenty stalks in each hole and with their upper ends erect. They are now much decayed, but during the late autumn the effect for some distance round the tree was more like a patch of an autumn stubble field than a garden lawn. We all know there is nothing new in what I am trying to describe, for these busy economical creatures have been carrying on exactly this same operation ever since time began. I have not seen Dr. Darwin's book on worms, but I doubt not he will have noted and explained the peculiar habit to which I refer. The point involved in the enquiry is, what object has Nature intended to secure by the process in question? It is not the result of accident, for Nature does nothing by accident. We only know that some beneficial purpose has to be attained by this peculiar habit of the humble earth worm. If one might venture to speculate, it would not seem unnatural to suppose that these collections of small twigs drawn deeply into the mouths of these worm holes were intended to keep them partially open for the purposes of ventilation, or, as in the present case, the lawn being on a dry sunny bank facing the south, the worm in such a situation may require to adopt this course to admit moisture as well as air. Or may it be that in a cultural sense these worm-casts which are during the summer time such a source of vexation, covering walks and lawns with innumerable and unseemly earth clots, are after all performing a valuable operation of natural drainage to facilitate the escape of undue moisture from the surface through the medium of these countless worm holes. Amongst your subscribers there are no doubt some who, if they would, could throw interesting light on this matter. I send you a piece of the turf to show the form in which the leaf-stalks are drawn into the worm holes. R. M.

GARDEN IN THE HOUSE.

Anemones in a cut state.—Although the scarlet Windflower is so beautiful when expanded, yet it makes but a poor show during such dull foggy weather as we have of late had too abundantly. Of course, during such weather the flowers are preserved, ageing but little; still they would be much more enjoyable if they displayed their beauties to the utmost. These, however, they show when gathered and put into water and placed in a room. There they keep open always, and are as beautiful under artificial light as at any time. I have just now before me a little bouquet in a vase of half-a-dozen blooms of *Anemone fulgens*, and a few blooms each of the white and bronze *Hellebores*, and some sprigs of foliage, and truly charming it is, such as any lady might well covet for her drawing-room table, and yet I much doubt whether the scarlet *Anemone* or the bronze *Hellebore* flowers would be purchased in the market. No large garden should be without a goodly bed of this winter-blooming *Anemone*, for it is that as much as any hardy flower we have. The bed should be in a sheltered, warm, sunny place, so as to induce early bloom. I think a good bed of early-planted roots of this, or of any of the single florists' kinds, would give as much bloom as would the contents of a hothouse during the winter months, whilst the cost would be but trifling. The foliage, too, is not without merit for decoration, as it is often elegantly cut, and is always pleasing. Beds of these *Anemones* once formed need little cultivation for several years. The chief thing to do after the foliage has died off in the summer is to gently stir the surface, and then add some well-rotted manure and a little fine soil spread over that. As the tubers root near the surface, this top-dressing will give the beds ample feeding material, and assist annually in the production of fine blooms.—A. D.



The Spruce Gall Aphid.—Wingless female (natural size and magnified), male (natural size), gall (natural size).

them are nearly matured their development will not be checked, and they will come out in due time as if they had remained on the trees unmolested, and will soon regain them again. The best time for carrying on this operation is in June; the galls are then of a greenish colour, with at times a reddish tinge. The gall after the insects have left it turns of a brownish colour like a dead shoot. Any insecticide which will kill aphides may be used to destroy this insect, such as soft soap and Tobacco water, paraffin oil, $\frac{1}{2}$ pint to 8 gallons of water, Gishurst Compound, &c. It is of little use to apply them until the insects are leaving the gall, for while within it they are securely sheltered from any applications of this kind. When they leave the galls, which is usually in July, or at the latter end of April, and in May, when the eggs are hatching, trees may be treated with an insecticide with very great benefit.

The formation of the cone is a simpler process than would at first sight appear, for it is merely the result of the enlargement of the base of the leaves at that part of the shoot. The colony which inhabit the gall are all the progeny of one female, in the same way that the inmates of a wasp's nest are the offspring of

ROSE GARDEN.

ROSE ENEMIES AND THEIR CONSEQUENCES.

BY G. BAKER.

The cockchafer.—We know that the caterpillars of many small beetles and moths are most destructive to the buds and young shoots of our Rose trees, one of which we are too familiar with to need a description of its appearance—the cockchafer (*Melolontha vulgaris*). In its perfect state it is a terribly destructive insect, working sad havoc among the leaves and flowers, as those whose Rose plants are surrounded with trees know to their bitter experience and vexation; as its work of spoliation is carried on during the night, it is consequently the more difficult to cope with. I fear all that can be done with this wolf of insect pests is to endeavour to kill all we can, both of the grubs and perfect insects; the grubs are unsightly looking objects, having the end of the body curved, so that the creature cannot crawl in the ordinary way, but is obliged to lie on its side.

Bracken-cloak (*Phyllophaga horticola*).—This is a very troublesome insect, both in its larval and perfect state; the eggs are deposited in the ground about July, after which they are speedily hatched; the grub grows most rapidly, and in appearance is very like that of the cockchafer. It feeds most greedily on the roots, but when it attains its perfect state, it leaves the ground and does much violence to our Roses, among the petals of which it may be often found; nor does it confine its ravages to the flowers, for it gnaws round holes in the leaves as if made by shot. Now as to treatment—I have tried several modes, but with very little success; the surest way to get rid of them is to destroy the grub, which may be done by hoeing over the ground pretty often, and carefully looking up the grubs and picking them out, then dressing the ground with equal parts of gas lime and soot, or ammoniacal liquid from the gas-works will effectually destroy them, mixed one part to ten of water.

Earwigs (*Forficula*).—These baneful insects are constant in their habits, frequently lodging in and out, disturbing the petals of the flowers; they are nocturnal in their visitations and hide themselves deep among the petals, and spoil the beauty of the bloom in a most vexatious manner by nibbling round and destroying the uniformity of shape in the petals. They are very destructive, but can easily be destroyed by placing pieces of reed or bean stalks where they visit (these are chiefly the standard Rose trees). Being intolerant of light, they avoid the sunshine by every means in their power; you can blow them out of the reeds or bean stalks into a can of hot water, or what may be more convenient, a glass bottle with a little oil in it; you will also find the entomological forceps very handy in enabling you to draw out these most troublesome intruders.

Sawfly (*Hyloetoma rosea*).—This is most appropriately named from the peculiar formation on its under surface. On close examination by a powerful lens, there will be seen a sort of double notched ridge extending the whole length of the body, which the creature can bring into action like a saw, and thereby effect a groove in the part on which she rests, and therein deposit her egg, after which she moves on and acts in the like manner. If you examine your plants in the autumn, you will find the stems and nervures on the under surface marked with little notches—these are the grooves made by the sawfly—from which young grubs have been hatched. Now, as to getting rid of them,—I have here again often failed, and at the best have met with more partial success. I recommend assiduous search and handpicking, though unfortunately the mischief is done before we can catch the destroyer; these grubs, however, are often discovered in the ground, and I therefore strongly advise the free use of the hoe, and afterwards a good dressing of equal parts of gas lime and sulphur.

The leaf cutter bee (*Megachile centuncularis*).—These insects are solitary in their visits,

and when one has selected a plant to its liking, it settles on a leaf, and with the greatest agility cuts a semi-circular piece out, pursuing her work with the utmost mathematical precision, at the same time supporting the severed piece, which it carries off as soon as it is detached, to form a lining to its nest. The bee invariably visits the same plant or one near it, and often takes two or more scollops off one leaflet. Yet I feel inclined to forgive these little depredators the injury they do; but if anyone can find heart to destroy them, the best way is to watch the plant or plants they visit, and with a piece of board in each hand, when the bee is busy at work put one piece under and the other over, then quickly clap them together, so as to secure the insect.

Winter moth (*Cheimatobia brunata*).—This is a curious little insect, and appears in winter, and though small is capable of doing much mischief; the female has no wings, consequently cannot fly, but she may be seen creeping along and seeking the unopened buds, and lays her eggs upon them and the young shoots also, and when the spring comes and the leaves expand, the eggs are hatched, and give forth a number of caterpillars, which speedily bury themselves in the bud. The little birds lend us their aid to seek out these troublesome intruders, but, unfortunately, I have found they have dragged forth the bud as well as the insect with it.

Swallow-tail moth (*Ourapteryx sambucaria*).—The caterpillars of these moths are called Loopers. When one of these desires to advance, it grasps the object firmly with its fore feet, and draws the hinder feet close to them, forming the body into an arched shape. The hind feet then take a firm hold, and the body is projected forward until the fore feet can repeat the process. These caterpillars resemble very closely dead twigs, so that they can hardly be distinguished from the branches on which they cling. They feed on the leaves and flower buds. The list of moths classed under the family name of Tortricidae, or

Leaf rollers, supplies many destructive agents to the Rose, including the following: *Tortrix heparana*, *Tortrix ribana*, *Lozotonia rosana*, *Pardix tripunctata*, and *Spilonota robora*. The grubs of the above make their appearance with the first opening of the leaves, of whose structure they take advantage to construct their summer abode, banqueting, in the meantime, on the leaves that shelter them, and if unmolested, after working havoc among the foliage, make for juicy buds, which they soon disfigure and render entirely useless. The larvae have the peculiarity, when disturbed, of lowering themselves with a web-like thread. The only remedy for their destruction, and also those of the winter moth and swallow-tail moth, is assiduous handpicking.

Nepticula anomalella and angulifasciella.—The larvae of these moths feed on the pulp of Rose leaves, making long galleries and blotches under the epidermis, and generally making their appearance in July, August, and September. The best way to destroy them, is merely to squeeze the leaves together, or have them picked off and burnt.

Red spider (*Acarus tellarius*).—These little creatures, however, are unquestionably very injurious to roses, either when trained to walls, or grown under glass. They increase most rapidly, and though so minute in size, they have extraordinary powers of extracting the juices from the leaves; and to further aggravate the deadly mischief thus caused, they spin tiny webs over the leaves and points of the young shoots, so as to completely clog up the pores of the leaves, thereby stopping their powers of transpiration and absorption, and giving them a parched or burnt appearance. As these little nuisances abound, the best remedy is the constant use of the syringe. I have found a wash, composed of a large wineglassful of petroleum in two gallons of soft water, most effectual. Before playing on the plants, draw up a syringe full and force it back again into the vessel two or three times, so as to mix the petro-

leum as much as possible with the water. The wash may be used every day, or as long as is found necessary.

Ants (*Formica sanguinea*) are occasionally very troublesome pests, being very determined and incessant in their attacks, generally eating into the flower buds, and thereby rendering them perfectly useless. A little arsenic mixed with moist sugar, and placed in their runs, will soon destroy them.

Aphides (*Aphis rose*), or, as they are more commonly called, green fly or plant lice, I am sure need no description. They are, unfortunately, but too well-known, especially to the Rose grower. They are wonderfully prolific, completely smothering, in a few days, the leaves, branches, and buds of the plants they infest. The injury they do very soon arrests the growth and progress of the plants, and their leaves and branches become twisted and distorted by the twisting of the tissues, for the extraction of the juice, and the plants, if not attended to, become at length almost paralysed by the injury thus occasioned. The autumnal broods of these insects are egg-layers—and those produced from the eggs in the spring are viviparous. Tobacco water, Tobacco powder, or, where possible, fumigating them with Tobacco paper, are the most certain remedies. Violent syringing with clear water will also clean the plants for a short time, but those not disabled will quickly return to their feast. They are killed with the slightest pressure, so that you have only to draw your fingers over the infested parts, and destroy thousands at once. On the leaves and stems of trees much infested with aphides, may be observed a glutinous substance that adheres to the fingers and is sweet to the taste. This substance is properly called honey-dew, and is secreted from the aphides. Bees and ants are very fond of this honey-dew, and the ants may be seen feeding on the saccharine secretion as it exudes from the insect. Thousands of ants may be seen traversing the trees on which aphides are plentiful. Some are of opinion that ants do not feed on the Rose, but follow after the aphides; however this may be, I have no doubt many rosarians, like myself, have found swarms of the black ants on the top of Rose buds, busily at work; and certainly where this is the case, however you may fairly dislodge them for the time, the little creatures you will find return again boldly to their work, and assuredly where they have visited the bud, it never is seen to open its blossom in its known natural form and beauty. Yet I have been anxious to forgive these little busy workers the mischief they have created when watching the marvellous power possessed by ants, and how they make known to their comrades any store of food they have discovered.

Mildew.—We should be careful, by every possible means, to guard against producing any check to the plants, either by watering the roots or overhead with cold water during very hot weather, and thereby rendering them susceptible to fungoid attacks. In preference to watering at such a time, I would advise a good mulching, or a constant moving of the surface soil, to prevent radiation. I can strongly recommend the following wash: Boil 1 lb. of soft soap in two gallons of water—syringe the plants daily with half-a-pint of this mixture put in two gallons of rain water, and dust the affected parts with sublimated sulphur when wet from syringing. I have also used, with much good effect, an insecticide called *Fir Tree Oil*, prepared by a Mr. Hughes, chemist, at Manchester, and is sold by most nurserymen—half-a-pint to four quarts of water. It is rather an expensive preparation, but I have used it through a very neat little instrument that has, within the last few months, been brought out by Mr. Wells, of Earlswood Nursery, at Reigate, called *Wells' Improved Spray Diffuser*. It is worked with great facility, and can be directed to any part of the affected plant. It is a great saving, as a small bottle will do as much good as two gallons of insecticide with the ordinary syringe; or a wash consisting of soft soap dissolved in boiling water, and then add sulphur

and Tobacco, stirring the mixture well together when using.

Orange fungus.—There is, however, no disease to which the Rose is liable that is so destructive in its effects as a virulent attack of Orange fungus. It is most subtle in its action; attacking the foliage sometimes in an early state of its growth, and spreading rapidly over a collection of plants, it makes its appearance on the under side of the leaves, in the form of the heads of very small pins. These, however rapidly increase in number, until the leaves look as though they had been dusted with cayenne pepper, and their vitality is quickly consumed through its effects. By its ravages the plants are denuded of foliage long before the wood has time to ripen, consequently they are in a very delicate state to stand against hard winter weather, and those that have that ordeal to undergo, invariably start weakly the following spring. The remedies I can speak of are, unfortunately, not very successful; and though I have but faint hopes of being able to effectually cure this pernicious disease, the next best thing is to endeavour to check its vegetative power of spreading growth, and prevent its reappearance. This can be attempted by raking off all loose materials and as much of the soil as possible, and burning them. At the same time, give the ground a good dressing of quicklime. The burnt soil and other matters can be returned to the roses, greatly improved by the change they have undergone. At pruning time, carefully collect everything cut from the plants and destroy it. Then give the plants—stems and branches, stakes and ties (if any)—a good coating of the following mixture, applied with a suitable brush: Quick lime and soot, mixed to the consistency of paint, in a pailful of which add half-a-pound of the sublimated sulphur and a small handful of coarse salt; stir and mix well together before applying. The object being to destroy the resting spores of the troublesome fungus. I have tried washes of all kinds, carefully ringing and brushing over the leaves with various compounds, but with little success, and in some instances finding the remedies even more fatal than the disease. I have most faith in an infusion of Hellebore root, four ounces to half-a-gallon of boiling water, then add half-a-drachm of the bichloride of mercury (first dissolve the mercury in a little spirit), and lastly, add half-a-gallon of lime-water. I have certainly seen good results from this application, though I must also admit it has sometimes failed. I have observed we get this Orange fungus, or mildew, in long continued dry weather, and chiefly on the lower leaves of the smooth-wooded class of Rose plants, such as Victor Verdier, Comtesse d'Oxford, Hippolyte Jamain, and the like; but it is worthy of remark that neither Madame Clemence Joigneux, William Warden, or Edouard Morren, and those of the same character of foliage, &c., are seldom subject to these forms of fungoid disease.

Black fungus.—This appears on the leaves in blotches. The edges are irregular or star-shaped. It most commonly makes its appearance in poor and exhausted soils, or after a long continued drought, causing an insufficient supply of nourishment to the plant. Though these are the causes, it is most undoubtedly contagious after it has obtained a footing. As a remedy, syringe with a solution of soft soap, 6 oz. dissolved in a gallon of water, adding 2 oz. of sulphur, mix well together; or, nicotine soap, 4 oz. to a gallon of water; or, sponge the leaves with the following wash: 2 oz. of sulphate of copper dissolved in hot water, and then add two gallons of cold, soft water.

Root fungus.—This frequently attacks the Rose; it is brought about by the soil in which they are planted containing matter favourable to fungoid growth, such as dead wood, leaf-mould, &c., hence the necessity of removing all such substances; stumps also of rotten stakes should be carefully taken from the ground. I know some regard with suspicion the Manetti stock; their opinion is that Roses on this stock being planted somewhat below the union, so as to induce this

stock to swell, and with the view of the Roses becoming established on their own roots, the stock then dies and becomes a suitable breeding repository for this fungus, the mycelium of which permeate the dead tissues, and instead of being the medium of giving existence or maintaining vigour of life in the Rose, it becomes the means of imparting its death-blow. I mention the matter, though I do not share the opinion. The best chance of remedy is to lift the plant and remove all decayed portions of the root, then thoroughly wet the roots, and dust with quicklime, and plant in fresh soil.

Curl.—This generally occurs when the Roses have been occupying the ground for a very long period of time, consequently the constituents of the soil necessary to their well doing becomes exhausted, and they are thereby rendered very susceptible to climatic changes. Under these circumstances I advise that the plants be lifted and re-planted in improved soil.

Canker.—This disease is, as a rule, confined to that most glorious Rose, Maréchal Niel, and arises from the plant's weakness and inability to take up and make use of sufficient nourishment to sustain its growth and prolific blooming. As a remedy, I suggest the removal, if possible, of the affected parts, and enrich the soil both by solid and liquid manure.

Lichen and Moss sometimes form on the items of standards and dwarf standards, and if allowed to accumulate, are decidedly injurious to the well being of the Rose, stopping the pores of the epidermis of the stem and young branches, besides forming suitable niches for all kinds of insect eggs and spores of fungi. The winter dressing I have mentioned above for Orange fungus, will also remove and prevent this cause of disease.

Abridged from "Rosarian's Year-book."

Maréchal Niel.—We are now cutting glorious golden blooms of this Rose from an early Peach house, our houses which are lean-to face the south, and one light, that in the west corner of each is devoted to the Maréchal. The space thus given up is hardly missed by the Peach trees and we are bounteously rewarded by a wealth of lovely blooms at a time when they are highly valued. The plants which are on their own roots, are planted in the back border in a liberal compartment of good loam and rotten manure, with a dash of wood ashes amongst it. They are taken up the back wall, and then trained down the sash from top to bottom (three rods) on light wires close to the glass. The best results are to be had by cutting back annually to the top of the house, immediately the last bloom is out, leading strong young growths away down the wires as before, and checking all others till these get fairly started. Thus managed, they make strong young canes, the whole length of the rafter, and in each bud a latent bloom for the ensuing spring. I generally strike a few cuttings annually, planting them about in odd corners near the walls. So that we have always a two or three-year-old plant at command, and whenever those indoors show signs of weakness, or cease to yield a fair return, we pull them out after blooming, renew the soil, and replace them with vigorous young plants.—A. MOORE, *Crummure*.

SHORT NOTES—ROSES.

A Rose-loving Amateur would feel obliged if other lovers of the Rose would send him a list of the Roses that have done best with them, and on what stocks. The object in view is to find out the best Roses for the different counties.—E. DAMANT, 11, Billiter Square, London.

Roses in pots.—I have some Rose trees outside. What is the best time to put them into the greenhouse to flower the latter part of July? I shall be greatly obliged for a reply from any of the Rose growing readers of THE GARDEN.—ECONOMY.

[Roses in pots to bloom indoors the latter part of July do not require to be brought into the greenhouse at all. They should be kept on the north side of a fence or wall to retard them.

They should be pruned about April 20, then be plunged out in the open and only be protected from spring frost. Otherwise, cultivate as if grown in a greenhouse.—GEORGE PAUL.]

FARMERS' GARDENS.

"PEREGRINE'S" note in THE GARDEN (p. 74) about farmers not being gardeners, and "never putting in an appearance at the local horticultural shows," is if not wholly wrong, is only partially right. When I was in Leicestershire last autumn I went to see a farmer who grows all the best and some new vegetables in his garden and in the fields. I saw Veitch's Autumn Giant Cauliflower with him better than I ever saw it before, and so of Schoolmaster Potatoes and many other kinds. He had a field of Mangold Wurtzel near his house, and in the drills here and there were blanks, caused either by the drill-pipe clogging or by seed not germinating in the usual way; but wherever there was a "miss" or blank bit of land so caused there a few Brussels Sprouts, a Potato or two, a Cauliflower, or a few Broad Beans had been carefully dibbled in by hand, and the result of this thrifty, if promiscuous, culture opened the eyes of some very good professional gardeners at the "local horticultural show" at which the farmer in question took fifteen prizes for garden produce, mostly vegetables grown in the open fields, and fruit from outhouse walls. This man had thinned out, pruned, and manured an old orchard, and had quite a selection of good wall and orchard fruit to offer to his visitors. I found him particularly knowing as to the varieties of fruit and of vegetables, which, as he expressed it, "were at home" in his cold clay soil.

It may be that this farmer, like the Onion and big Gooseberry men of Lancashire, the Rose and Celery growers of Nottingham, and the florists of Norwich and of Coventry, is only an exception to the rule which "Peregrine" seeks to enforce, and yet having been born and bred upon a farm, and knowing much of farmers and their ways, their tastes and pastimes, I should be sorry that my experience of them was in any way corroborative of what "Peregrine" writes of them. After all, he is very undecided as to whether praise or blame should be meted out to them. I can agree most thoroughly with all he says of the beauty of old-fashioned flowers tended by dainty hands in farmhouse gardens. A near relation of mine had such a garden, and the sparkle of old-fashioned flowers in it was one of my earliest experiences. My first love of gardening was acquired in such a place. What is said of Scotland may or may not be true, but I am told that in "Royal Meath" and in other parts of Ireland some of the rarest of hardy flowers are to be found, for the hurricane of "bedding plants" never swept over the Emerald Isle in the way it swept over England from one end to the other. Hence in Ireland we are told of Pompadour Primroses, and the old blue Polyanthus and Narcissus eystettensis by the thousand in farm and country house gardens, to say nothing of shrubs and trees and herbaceous plants which, even now after several years of a healthy "revival of taste," are rarely to be found elsewhere. Not a few of the farmers in England employ gardeners; and their places compare favourably in many cases with that of the parson, or even the squire. The farmer may not be a gardener in some ways, perhaps, but I know that he sometimes does gardening exceedingly well. At any rate, I think "Peregrine's" charge against him "not proven."

BETA.

Edgings for plant stages.—In order to obviate the unsightliness of red flower-pots on the stages of show houses or conservatories, we have had recourse to a fringe of trailing plants and an edging of that most lovely of all indoor carpeting plants, Selaginella Kraussiana, whereby the pots are effectually hidden. The plan we adopt is to have shallow boxes 4 in. deep at back, 2 in. deep in front, 6 in. wide, and in 6-ft. lengths; these are filled first with a layer of crocks, then some

Cocoa-fibre, and the rest with light sandy soil. Along the front *Tradescantias*, *Panicum variegatum*, and *Ficus repens* are planted so as to hang down gracefully. The surface is then dibbled thickly with little pieces of the *Selaginella*. The boxes are then set in a shaded moist house, such as a vinery, or any place in which the temperature ranges from 50° to 65°. There the plants quickly get established, when they may be transferred to the conservatory or show house, and if kept carefully tended with water will last the whole season, forming a lovely little bank of the freshest verdure and a fringe reaching to the floor. Anyone giving this system a trial will not be likely to revert to the old plan of forming an edging with plants in pots.—J. GROOM, *Linton*.

TREES AND SHRUBS.

THE SNOWBERRIES.

CONSIDERABLE attention has been directed of late to the ornamental properties possessed by many of our berry-bearing shrubs, among which the Snowberry (*Symphoricarpos racemosus*) stands almost alone as the representative of the white fruited section. This fine shrub is commonly met with in gardens, and deservedly so, for it quickly makes itself at home, throwing up suckers in great profusion, thus forming a dense twiggy mass, which, during the summer, is thickly studded with small but bright rose-coloured flowers, and these in their turn are succeeded by the comparatively large fruit from which the name of Snowberry is derived. It is a native of North America, whence it was introduced in the early part of this century. Another kind, *Symphoricarpos vulgaris*, is less in all its parts than the preceding, and more compact in habit. Its leaves are small, and arranged regularly along the shoots in an even frond-like manner. The great difference between the two kinds is, however, the fruit, which in this case is about the size of a Sweet Pea, and crimson in colour, besides which it does not ripen till November or December. The foliage is also more persistent than that of the Snowberry. A form of the above, in which the leaves are deeply margined with whitish yellow, affords a pleasing variety,



Common Snowberry (*Symphoricarpos vulgaris*).

especially as the summer's sun does not tarnish their beauty. *S. occidentalis* very much resembles the Snowberry in general appearance, but the berries, though white, are not nearly so large or effective as those of that kind. ALPHA.

THE DIFFERENT KINDS OF LAURELS.

NOTWITHSTANDING the immense number of shrubs introduced to British gardens since the Laurel (*Cerasus Lauro-cerasus*) first found a place therein, it is doubtful if amongst the

In the Caucasian (*caucasica*) the leaves are much stouter in texture and darker in colour than in the type. In habit, too, it is very different, forming a fine bold shrub, fully as vigorous, but of more sturdy growth than the common kind which, owing to its hardness and



Flowering Spray of the Common Laurel.

whole of them a more generally useful plant can be found. It thrives both in sunshine and shade, and not being fastidious as to soil it can be used in a great number of ways, more especially as undergrowth, or to act as a screen to shut out unsightly objects. It is as a bush, however, it is seen to most advantage, and where it has room for full development it attains a large size. A well grown Laurel, indeed, in April or May, when laden with its erect spikes of white flowers, is a beautiful object, and equally interesting in autumn when the blossoms are succeeded by dark purple berries. For associating with other plants in shrubberies and similar places, the Laurel is well adapted, as by a judicious use of the knife it can be easily kept in bounds without in any way destroying its beauty by giving it a trimmed appearance. The Laurel has now been cultivated in our gardens more than 200 years. It was first sent from Constantinople to Clusius, director of the Botanic Garden at Vienna, in 1576, whence it became distributed throughout Europe. It is a native of various parts of Asia Minor, Northern Persia, and the Crimea, which will account for its having been introduced by way of Constantinople. The common Laurel possesses one drawback; it is often injured severely in winter. When the weather is mild it continues to grow till severe frost sets in, when the young growths quickly succumb. This objection, however, cannot be urged against some of the varieties of Laurel, the Caucasian and the round-leaved having in nearly every case passed unscathed through our recent severe winters, and the Colchic being, as a rule, but slightly, if at all, injured.

depth of colour, it will probably in time to a great extent supersede.

In the variety called *rotundifolia*, the leaves are far from being round, but they are somewhat blunter and broader in proportion to their size than those of any other kind. This variety is of a shorter and more dense habit of growth than that of the preceding, and for this reason is better adapted to plant where space is limited, especially as in hardness the two are about equal. The Colchic Laurel (*colchica*) is a very strongly marked variety; both in foliage and manner of growth it differs greatly from the others. Its leaves are large, rather thin, much pointed, and on the undersides of a pale hue, while the branches grow almost horizontally from the stem, a position they maintain to a great extent as they lengthen, for they do not become so heavy as those of the common sort. Another notable thing about this variety is its extreme floriferousness compared with that of any of the others. The Versailles Laurel (*latifolia*) is a large, robust, and bold foliaged form, but one which seems to suffer to the same extent as the common Laurel in winter. A gold and a silver variegated kind are sometimes met with, but as a rule the normal green foliage soon obtains the mastery, and growing much the faster hides the variegated portions from view.

The following may be classed as curious rather than ornamental kinds, viz., the dwarf Laurel (*parvifolia*), a short growing sort, but usually starved looking and unhappy in appearance; the narrow-leaved kind (*angustifolia*), and *intermedia*, a form between the last named and the common kind. In the variety

camellia folia the leaves are very dark green, of unusual substance, much curled, and on the strongest shoots greatly resembling *Camellia* leaves; hence its name. ALPHA.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE. G. J. SURREY.

WE gladly welcome the flowering season of the Indian Azalea, a plant so good for ornamental purposes. It decorates a long dinner table for eighteen people, chiefly by means of three well-grown plants, about 16 in. to 18 in. through, in silver vases. The centre plant, the tallest and largest, is a rosy red, the other two a full pink. Round each plant is a group of four silver cups, holding cut flowers and foliage of the same red and pink Azaleas, the two colours grouped together in every cup. No other flowers or foliage are needed. The table is lighted with large silver candlesticks standing between the flowers. For a round dinner-table cut Azaleas may be arranged in a ring of fish-globes round a central lamp, red and pink flowers alternately. If the glasses are of two sizes, so that every other bouquet may be a little more important, it will be all the prettier. The same arrangement suits red and pink *Camellias*. The fish-globes may also be grouped in threes, two small with a larger between, the three glasses touching; all the smaller dressed with pink, and the larger with red, forming an interrupted circle, a space being left between each group of three. Tips of shoots of common Laurel, if the pieces are chosen as small-leaved as possible, make a good garnish for dessert dishes; large single leaves, as commonly used, look coarse and unmeaning, but the points of shoots with three or four leaves, of which the largest is not more than 3½ in. long, are very suitable. They may be found towards the bases of Laurels that stand free and are not overgrown with other shrubs. Twigs of Bay are still better, but so liberal a supply is not generally available. Double German Wallflowers, potted up in autumn and flowered in the greenhouse, are now useful pot plants. On a sitting-room table a brass Indian pot (lotah) holds foliage of the Great St. John's Wort and long shoots of *Euphorbia*, pink and red. The St. John's Wort is valuable winter foliage, shades of quiet red and green-bronze, with a dull bloom on the surface. It is durable and hardly comes amiss with any flowers. A low bowl is filled with short twigs of berried Ivy and thick groups of Snowdrops.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Bamboos—It may, I think, be taken for granted that any Bamboos that have safely withstood the unusual severity of the past two winters are hardy, and to this class belong, at least so far as this part of the country (Hampshire) is concerned, *Bambusa Fortunei*, *Fortunei variegata*, and *Metake*. These were all somewhat injured, but in spring they threw up fresh stems from the roots as vigorously as if there had been no frost whatever, and many of the old canes had only a few of the weakest, unripe branches destroyed; therefore, being so hardy their culture deserves to be largely extended, particularly for sub-tropical purposes. *Metake* makes a good central plant for a large bed of Cannas, and it likewise does well in a permanent position on a lawn, as do also the other two varieties. They require a deep, rich loam and plenty of moisture; hence waterside positions are best for them. They are increased by division of the roots in spring. They are long in recruiting the injury caused by transplantation, and, therefore, this should be rarely practised. Old established plants may be divided by means of a sharp edging iron, digging out the severed portions, and filling in the cavities thus made with good soil.

Gladioli and other bulbs—As a rule, in the sandy soil of this district Gladioli winter safely when left in the ground, and old established

bulbs produce flowers far more profusely, though not so fine individually, as when the bulbs are selected and replanted annually, but for effectiveness, give me the long established bed with its long season of flowering and irregular heights of the flowers. Those not so favourably located as to soil and climate would do well to keep to the more general plan of lifting the bulbs in autumn and planting afresh at this season. We are now planting out a few in clumps of five and seven among herbaceous plants, putting them near those kinds that will have done flowering when the Gladioli begin, in this way maintaining the gaiety of the border. Anemones, Ranunculus, Lilies, Schizostylis, &c., are used in exactly the same way and to the same intent; these should now all be planted. In heavy soils the bulbs should be placed in a handful of sand, and the depth should be less than in light soil, say about 2 in. deep for Ranunculus and Anemones, and 3 in. for Gladioli; but 1 in. deeper for all kinds in sandy soil may be allowed. Lilies, of course, must be planted in depth according to the variety and size of the bulbs, but it may be well to remark that they are generally not planted sufficiently deep. Where ground can be afforded to plant each kind in beds by themselves they will repay the space and labour by the quantity of cut flowers they will produce, and of course can be had finer because of the convenience of being able to specially prepare the soil for them by trenching and manuring.

General work—Complete all alterations, specially such as necessitate the removal of turf, as it is important that this gets re-established before drought and bright sunsets become excessive. Edgings or verges of turf should also be cut; they will presently be too hard to be operated on nicely, not to mention the longer time which they take to cut when in that state. Planting, too, should be pushed to a close, at least as regards deciduous subjects, but if needs be most evergreens may safely be removed for some weeks yet, but even with these we are certain of a dry summer our experience is such that nothing would induce us to transplant at all after the beginning of March, and those moved as late as that should be kept thickly mulched with Bracken or litter the whole summer. Hedges and belts of any kind may now be clipped, and young hedges be encouraged to grow by pricking up the soil and clearing it of weeds. Laurels and Hollies that have got naked at bottom should now be headed down to any height that may be thought desirable; younger plants may be kept in compact form by pruning back the more straggling shoots. We have far too much of this kind of work here, but though at the time we are apt to begrudge the labour, there are few operations that give us an equal amount of satisfaction.

THE ROCK GARDEN.

T. D. HATFIELD, SOUTHWOOD.

RESERVE stock wintered in cool frames should be lifted, and the usual watering, recommended after a severe winter, deferred until the pits are drier. All hardy annuals and some of the hardy perennials should be sown now in a cool frame, but many of the latter class should be kept for sowing out-of-doors later in the year. We can often save ourselves a good deal of work in spring when we are busy by gathering and sowing seed as soon as it is ripe in the open ground. It is necessary only to give a covering of sand and a few Yew twigs in hot weather. I have sown seeds of various *Drabas* in pots, especially *D. cuspidata* and *D. Kotschy*, and have been unable to rear them, whereas plants have come up the same year from self-sown seed. *Ethionema cordifolium* has never come up in pots, but when self-sown the seeds have germinated freely; other kinds which sow themselves are: *Arabis rosea*, *Arenaria norvegica*, *A. verna*, *Armeria*, *Aubrietia*, *Cerastium Biebersteinii*, *Claytonia sibirica*, *Coronilla minima*, the majority of the Pinks, several *Erigerons*, *E. caucasicus*, *E. philadelphicus*, *E. glaucus*, *E. grandiflorus*, and *E. regalis*, *Erinus alpinus*, and

several *Heron's*-bills. Indeed, large numbers might very well be left for outdoor sowing in any odd bare spots on the rock garden. It should only be in cases in which one's knowledge does not justify outdoor sowing that the cool frame should be resorted to, or in the event of the quantity of seed being limited. If a plant has the reputation of being quite hardy, one may be sure that at some season of the year its seed will germinate either in a cool frame or out-of-doors. The hotbed should be tried in certain cases, as, for instance, if you want to get a few biennials to flower the first year; doubtfully hardy members may be sown in a cool frame a month hence, and those with which you are better acquainted now. The greatest difficulty we shall have will be with plants which bear an ordinary winter in this country, but which, when we get a severe one, are killed or very much injured. These cannot be truly called hardy, and, therefore, should have a hotbed, as, for instance, *Cladonia umbellata*, *Callitriche involucrata*, *Chlora perfoliata*, and *Umbilicus spinosus*. Among plants in flower are *Saxifraga Burseriana* major, *Cyclamen Coum vernum*, several species of *Crocus*, *C. Imperati*, *C. Sieberi*, *C. biflorus*, *C. minimus*, and *C. vernus niveus*; Snowdrops, including *Galanthus Imperati*, *Elwesii*, and *plicatus*. A patch of that pretty *Crocifer*, *Ionopodium acaule*, has been in bloom from December until the present time.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Ferns—See that the whole of the different species now begun, or about to begin growth have the soil thoroughly moistened, or the fronds will have a crippled appearance and be deficient in size. At no time can Ferns be allowed to get so dry at the roots as the generality of other things will bear without injury, but whilst the fronds are in a tender, half-developed state the want of root-moisture is most injurious. Except comparatively few species, such as the *Gymnogrammas*, that require a high temperature, it is a mistake to give Ferns so much warmth as that in which they are often grown, the effect of which is to make the fronds long, weak, proportionately less enduring, and more liable to injury from insects. Use manure water freely, but in not too strong a state, to all that are under-potted, and to which it is not deemed advisable to give more root room. This does not apply to the creeping stemmed kinds, which must have space to allow their spreading rhizomes to extend, or they will suffer permanently. One mistake that has been too general in the cultivation of Ferns is the supposition that because they are mostly found in a state of Nature, more or less shaded by other vegetation or the positions they occupy, they will succeed in any sort of dark structure. So treated, strong-growing species that require anything above a greenhouse temperature attain an undue size and smother the weaker kinds. Do not have fixed shading on the roof where it can be avoided, and use no more than is necessary to prevent scorching, with enough air daily to solidify the growth as it is formed. By following this course the plants will preserve a much fresher appearance than they otherwise would do through the latter part of the year consequent on the increased substance imparted to the fronds. Todeas are often spoilt through being syringed overhead. The condensed drops of moisture with which the fronds are usually studded when confined in cases in which these and other filmy species do best leads to the idea that watering overhead will benefit them, but this is fatal to their well-being. Keep them quite cool; the temperature of a cool greenhouse is much better than more warmth.

Potting stove plants—Such portions of the stock as were potted some time ago for early blooming will now be making progress, and should have an increase of heat as they begin to move freely. No time should be lost in completing the potting of the stock generally. It is well to consider what form the plants are to assume,

whether to be grown into large specimens or flowered in as small a state as the nature of each individual species will admit of. Most stone plants are quick growers, and will bear plenty of root room with large shifts, and where the object is to have large specimens this is the course to follow, but if the plants are required for standing in rooms, or to be removed to cooler quarters, such as a conservatory during summer, the small pot system of cultivation will be found most satisfactory, as under it the restricted leaf growth will better bear the adverse conditions under which the plants will have to be placed. The same holds good with regard to fine-foliated subjects; the smaller-growing *Caladiums*, if grown freely in large masses, are all but useless for employment in cool places as amongst the best decorative plants when cultivated in small pots with abundance of light and air, and no more heat than is requisite to induce moderate growth. *Allamandas*, *Ixoras*, *Dipladenias*, *Gardenias*, *Clerodendrons*, *Aphelandras*, *Franciscas*, *Hibiscus*, *Hoyas*, *Bougainvilleas*, *Medinillas*, *Jacarandas*, *Tabernaemontanas*, *Rondeletias*, *Thunbergias*, *Aristolochias*, *Æschynanthus*, and other flowering species, together with *Crotons*, *Dracenas*, *Aralias*, *Marantas*, *Pandanus*, *Musas*, variegated, *Pine-apples*, *Cupanias*, and *Dieffenbachias* should at once be shifted, giving them room proportionate to the size of the specimens and the respective purposes for which they are intended. See that the soil is in right condition as to moisture. To those who have not had much experience in plant cultivation it may be well to say that it is better to pot in soil that is a little too dry than the opposite. Another important matter is to see that all plants before being potted have the balls of earth well moistened, so that there may be no necessity for giving water for some days after the operation is performed. The effect of this is that the roots, more or less unavoidably broken in removal, have time to heal, and are less liable to rot than if water were given immediately the plants were potted. Pot moderately firm, but in the case of such stone plants as are partially shaken out at the annual potting, and which have the old soil removed to some extent, it is not advisable to ram the material so tight in the pots as with hard-wooded greenhouse stock where there is no annual renewal in this way.

Striking cuttings.—See that a sufficient number of the old plants of *Euphorbias*, *Begonias*, *Thyracanthus* *rutilans*, *Sericographis* *Giesbreghtii*, *Plumbago* *rosea*, *Pentas* *carnea*, *Jasminum* *gracillimum*, *Eranthemums*, and *Aphelandras* are at once put into sufficient warmth to produce cuttings for use next autumn and winter. Plants to be thus treated should have been cut back a short time ago, and ought to be placed where they will have enough light to induce stout growth in the shoots intended for cuttings, for upon this depends a good deal the character of the plants which they will afterwards make.

Luculia gratissima.—Wherever there is a warm greenhouse this should find a place, planted out if convenient; if not, in a large pot or tub. It is rather a difficult plant to strike, and the cuttings must be put in when they have arrived at the right age and size. If too young and sappy they are liable to damp off, and if too old they will not root freely. I found them to succeed best when about 4 in. or 5 in. long, taken off with a heel. Healthy plants in a genial temperature, say that of an intermediate house, start into growth immediately they have done flowering, and when the young shoots have attained the size just mentioned they should be put in pots filled with sand in the ordinary way, kept moist, and covered with propagating glasses, being careful that the cuttings are neither allowed to flag before being put in or afterwards. Should this occur the chances are that few will strike. In other respects this most beautiful and fragrant of autumn flowering plants requires no special treatment. It thrives in good turfy loam with a little sand, and makes more progress, especially in its early stages, if treated to an intermediate temperature than that of a greenhouse.

Pelargoniums.—The large-flowered and fancy kinds should have attention in the way of laying the shoots well out, so as to keep the plants open and stocky. With this view they should be placed where their heads will be close to the glass. Those that after flowering were set down earliest last summer will now be about setting their bloom-buds, and, if the pots are well filled with roots, will bear the application of manure water once a week; the soil also will do to be kept a little more moist, but any excess in this way must be avoided. The flowers of Cape *Pelargoniums* are comparatively small, and by many looked upon as insignificant; yet amongst them there are many that possess both brilliancy of colour and elegance of form. Their propagation is not so easy from shoot cuttings as that of the better known varieties, but they strike freely from root cuttings, and their after treatment is similar in other respects to that of the ordinary sorts, except that, being weaker growers, they require less root space, 6-in. or 7-in. pots being large enough for most of the species. They occupy little room, and are very suitable for cultivation by amateurs who have small houses.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Peaches.—In the earliest house still attend to the thinning, disbudding, and tying in of the young shoots intended to form next year's fruit-bearing wood. As I have before observed, the disbudding of loose Peach trees is an important operation which requires daily attention, combined with a complete knowledge of the condition of the roots. If the latter have been recently disturbed, or the trees have been weakened by heavy cropping, a little delay will give them time to pick up before many of the shoots are removed, but as trees of this kind generally set freely, the timely removal of a great number of the least promising fruit may precede disbudding, when good mulching, followed by a moderate supply of warm liquid, will soon start them into growth. Vigorous young trees, after being divested of fore-right shoots, may have many of the side shoots pinched either to form spurs or to supply foliage where there is likely to be a scarcity; but it must always be borne in mind that the best shoot, which starts from the base of this year's fruiting wood, must have plenty of room for growth and exposure to the influence of warmth and light. Where young trees are trained upon the extension principle and last year's shoots are from 2 ft. to 4 ft. in length, the latter may be allowed to carry a Peach at every foot run, and, provided they were well thinned out at the autumn pruning, two or more shoots, also the leading point, may be laid in full length. See that the trees are well syringed twice a day, and regulate the quality of the stimulus by the condition of the tree. If lating liquid by the condition of the tree. If well made and properly drained there is little danger of overwatering if foliage exposed to sunlight and light will take immense quantities, provided it is a few degrees warmer than the house and can pass away freely. Let the temperature range about 55° at night and 10° higher by day from fire-heat, and make up for a low minimum by closing with plenty of sun heat whenever that luminary penetrates the pall of which forcing gardeners have experienced more than enough for one season.

Figs.—A temperature of 60° to 65° at night and 70° to 75° in the daytime will not be too high in the early house during a continuance of this unusually mild weather, but in the event of a change to the long delayed winter, a lower figure, particularly through the night, will be advisable. Although the Fig delights in an abundance of heat and moisture, it does not succeed where there is not a corresponding supply of light and air; hence the importance of keeping the glass clean and stirring the fires early every morning in order to admit of a free circulation of fresh air. The enemies to which the Fig is most subject are musel scale and red spider; the first does not often

become troublesome until late in the season, but the latter sometimes springs into life before the first crop is ripe. The best antidote or preventive is copious syringing with clean water, generous feeding with tepid liquid, and the maintenance of a constant supply of ammonia by turning the plunging material and surfacing the pots with fresh horse droppings. Continue to give the necessary attention to pinching, thinning, and tying out where there is trellis room for extension; also thin the fruit where too thickly placed. Pay attention to directions already given for the management of early pot trees in succession houses by feeding, mulching, and syringing, always bearing in mind that the timely and vigorous treatment which the good cultivator applies daily improves his prospect of excellence by making the position of his enemy untenable. Young trees in pots intended for next year's forcing may now be started, in order to give them a long season of growth and time to ripen their wood. If stock is wanted put in eyes or cuttings and treat as Vine eyes, using well-drained sandy soil and plunge in a sharp bottom-heat in a close pit. If well managed a fruiting plant may be grown from the eye in two years.

Cucumbers.—Since my last notes were written we have experienced a change to much colder weather, which will necessitate extra firing to prevent the occupants of this department from receiving a check; and as few subjects are so easily and injuriously affected by sudden changes, the cultivator must be ever on the watch for the appearance of red spider and thrips, which invariably spring into existence where old plants are placed under the influence of overheated hot-water pipes. If taken in time the most effectual remedy is sponging with warm soap water; but prevention being better than cure, frequent syringing with a weak solution of Gishurst on mild evenings or dull days, when hard firing can be dispensed with, will keep these troublesome enemies in check. If mildew, the outcome of insufficient bottom-heat, hard cropping, and a low, stagnant atmosphere, puts in an appearance syringe well with clear sulphur water, renovate the beds, and stimulate the plants with copious supplies of clear tepid liquid or guano water. As young growths break away under generous treatment, gradually remove old leaves, crop lightly, fertilise the most promising fruit, and cut before they attain their full size. Ventilation and cleanliness—two important items in successful culture—must not be overlooked; but draughts being objectionable, the air should be conducted through ventilators placed in front of the pipes, and on a level with the surface of the fermenting material from which moisture and ammonia will be carried to the foliage and fruit. Cleanliness may be secured by the removal of all decaying matter and the frequent washing of the floors, shelves, and glass. Give every attention to spring-sown plants intended for pits or houses, and pinch or train to suit the position they are to occupy. If not already sown, a few seeds of some good prickly-kind may now be sown for fruiting in ordinary pits and frames. Although I have tried a great number of starting novelties, I have not yet met with anything to surpass a variety sent out by the Worcester firm, under the name of Smith's Frame. Many people think the name prickly kinds superior to the smooth *Syon House* section. As a consumer, I do not feel competent to venture an opinion; as a grower, I prefer the first for frames in the summer, and the last for house work all the year round.

Hardy fruit.—Although fruit trees in the open air are in a forward state, yet, owing to the absence of sun, they are not so much advanced as we at one time expected to find them. Another retarding cause may have been the unusually late spring of 1881, which threw the ripening and resting period well into the succeeding autumn and winter. Be this as it may, the abundant blossom justifies the expectation of an excellent crop of fruit, provided we can protect from the troublesome spring frosts, which generally follow mild winters. In all cases where movable screens can be adopted, no time should be lost in

getting them fixed, as much may often be done by shading and so retarding the blossoms of Apricots and Peaches from bright sunshine; but, as I have before stated, the coddling system must be regarded as one of the greatest evils, when perhaps there is neither sun to force nor frost to kill. On the other hand, it will be well to avoid being lulled into carelessness by the favourable appearance of the early part of the night, as it is well known that the greatest depression frequently takes place shortly before and sometimes after day-break. The first important item in wall covering is protection of the blossoms from wet either by the use of glass or boards, and as these checks to rapid circulation produce a dry, steady atmosphere, the flowers near the wall are capable of resisting several degrees of frost with impunity. The weather having been so favourable for outdoor operations, it is hardly possible that any part of the winter routine can be in arrears; but where this is the case, no time must be lost in setting matters straight, as a busy time is at hand, and doing things at the right time is quite as important as doing them well.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

WE are now busily engaged digging, ploughing, and manuring our Potato land. The late varieties I always plant before the earlier. After ploughing we harrow, and if very cloddy roll. Land cannot be too well cultivated for Potatoes. I dislike the use of dibbers, preferring to take out the drills with the plough, plant the Potatoes, and cover in with the cultivator. Varieties of Potatoes are now so numerous that one feels perplexed what to grow and what to avoid. I stick closely to some of the old kinds for field work; the best are Paterson's Victoria, Scotch Champion, Schoolmaster, and Beauty of Hebron. Magnum Bonums are useless in our soil. Last season without a particle of manure they grew perfect elephants—too large by one-half—while the quality was soapy and quite disagreeable. Scotch Champions I find are excellent, but that objectionable deep eye is against them. Schoolmaster if anything supersedes Victoria. That is the variety which I shall grow largely this year. Beauty of Hebron is simply unique as an early Potato, and it may be lifted and housed as soon as Myatt's and so escape disease. A thorough clearing and in many cases fresh planting of herbs should be made at this season. Tarragon, Thyme, pot Marjoram, and Pennyroyal may all be planted. That very useful herb, Chamomile, may also be parted and planted. Mint, perhaps the most useful of all, should be planted in the shape of cuttings when 3 in. high. Sage does best as cuttings put in in the first week in May. Seed of many herbs may be sown, but not at present. Knotted Marjoram, summer Savory, and Sweet Basil are much sought after in early spring; a small pinch for using in a green state may now be sown.

Forcing.—We are now sowing Canadian Wonder Beans for the last batch, and we intend growing them in 8½ in. pots. Bear in mind a potful of healthy roots is what is required, and not a potful of soil alone. Young plants now showing in outlying frames should be aired regularly to keep them sturdy and strong, but do not be caught napping by giving air in the morning and at night find the crop gone. Always take time by the forelock and place a bit of old netting over the lights, making all safe before leaving. Seakale, Asparagus, and Rhubarb may still be brought forward in case of need. Personally, I have no further use for them. My plan is to have Asparagus in about November 12, and keep the stock well up until now (Feb. 15). In the first week in April one can have it outside, and after being without it so long it is relished and much more thought of than if the supply had been continuous. This also I do with Seakale, but always have one of these two if possible. Vegetables are very plentiful this year. We are supplying beautiful Spinach, Broccoli, Tomatoes,

Artichokes, Seakale, Rhubarb, French Beans, and Asparagus.

NOTES OF THE WEEK.

ASPARAGUS PLUMOSUS.—This is one of the most elegant plants that one can grow in a cool greenhouse for furnishing an inexhaustible supply of foliage for arranging with cut flowers, a desideratum for any season. The feathery appearance of the finely divided deep green leaves has a charming appearance intermixed with cut flowers.

CHIONODOXA LUCILIE.—After spending a day among Orchids and other tropical plants one was glad to see a glorious sheet of bloom some two or three yards square of this brave little bulbous plant, that has recently been brought from Asia Minor to adorn our gardens ere the winter has left us. This we saw in Mr. Bull's nursery, at Chelsea, a few days ago, in a sheltered border at the foot of a wall. Such a mass of delicate blue and white is not often seen, and the plant is one of those that requires to be seen *en masse* in order to form an adequate idea of its beauty.

BORONIA MEGASTIGMA.—The delicious fragrance emitted by this Boronia is powerful enough in a single plant, but the perfume given off by hundreds of plants in one house is too powerful to be readily forgotten. This anyone may test for himself in Messrs. Veitch's nursery, at Chelsea, where the plant is largely grown. To those who are not acquainted with it it may be described as a dwarf, twiggy shrub, bearing myriads of small bell-shaped blossoms hanging from slender branchlets. The colour is a dull bronze hue on the exterior and yellow within, colours which are not very attractive.

SCILLA NIVALIS.—This is a charming little Squill in the way of *S. bifolia*, of which, indeed, Mr. Baker makes it a variety, though M. Boissier ranks it as a species. Like *S. bifolia*, it has a pair of leaves partially developed at the time of flowering, deeply channelled, and bronzed on the exterior. The flowers are small, of a rich Tyrian purple, produced from six to nine together in a slender raceme slightly overtopping the foliage. It is an exquisite little spring flower, and one that is worth cultivating on account of its earliness. There are now numerous plants of it in blossom in Mr. Bull's nursery at Chelsea.

RHODODENDRON LADY ALICE FITZWILLIAM.—This variety, recently distributed by Messrs. Fisher, Son, & Sibray, Handsworth, is one of the loveliest amongst a beautiful race of greenhouse shrubs. Its chief charm is the chasteness of the large white cup-like blossoms, which measure some 4 in. or 5 in. across, and plentifully produced even on small plants. When well in bloom the whole bush looks a mass of white interspersed with deep green wrinkled foliage. This is the Rhododendron that was so much admired last season when exhibited at the principal shows. It is now in perfection in the Royal Exotic Nursery, Chelsea.

ANTHRUM WENDLANDI.—This is one of those stemless species having large, deep green leaves arranged in a huge tuft, from the centre of which is developed the inflorescence, consisting of a large hooded spathe, leathery in texture and creamy white in colour, except the lower part, which is of a rich carmine-crimson hue. The erect spadix, about 3 in. long, is of ivory whiteness. Altogether the plant is singularly attractive when in flower, and quite distinct from the ordinary run of stove plants. Its chief value lies in its flowering in a comparatively small state, whereas the majority of the

others of a similar character attain gigantic proportions before they bloom. We saw it lately in flower at Mr. B. S. Williams' nursery, Upper Holloway.

GYNERA AURANTIACA.—Under this name the Compagnie Continentale d'Horticulture, of Ghent, are about to distribute a new ornamental-leaved plant, which, it is said, will be found to succeed in the open air in summer, and which if anything like a coloured plate of it which we have seen, must be very handsome. The stem and leaves are clothed with a thick covering of hairs of a beautiful deep violet colour, giving them the appearance like that of the richest velvet. This is especially so in the case of the young leaves, and when combined with the brilliant orange of the flowers, the aspect of the plant is reported to be extremely beautiful. It will, in all probability, become as popular as *Iresine Lindenii* or *Coleus Verschaffelii*.

CLEMATIS INDIVISA LORATA.—It is not a little surprising that a beautiful winter-flowering plant such as this does not possess a wider spread reputation than it does, and considering that it is an easily grown plant, and so hardy that it will almost thrive in the open air, the fact is the more remarkable. At the Victoria Nursery, Holloway, it is grown in pots, and at the present time the plants are beautifully in flower. The blossoms, about 2 in. across, are pure white except the central tuft of stamens which are tipped with purple. The elegant growth of the plant, and the profusion in which the wreaths of blossoms are produced, render this New Zealand climber a most desirable plant for adorning the roofs of cool greenhouses. It thrives best when planted out in a border of good, well-drained soil, and the branches trained under the roof in the lightest position. In order to ensure an abundance of flowers the plant, when in vigorous growth, should be closely pruned annually.

PLANTS IN FLOWER AT GRASMERE, BY-FLEET.—

Auricular, various	Hepatica x flore-pleno
Aucubas	angelus
Aubretia greca	Helleborus orientalis
Bougainvillea	abachensis multiflorus
Columnna	obscure ruber
Andromeda corymbulata	cupreus
Alchemilla conjuncta	kalmickensis
Acute, yellow	abachensis purpureus
Berberis Darwini	Heinemann's No. 6
Aquifolium magnifica	Iris reticulata
Beal	Iberis superba
fascicularis hybrida	Jasminum nudiflorum varie-
gatum	
Cheiranthus, of sorts	Lonicera fragrantissima
Crocuses, of sorts	Mignonette
Cornus mascula variegata	Narcissus, of sorts
Cydonia japonica	Sutcliffea cerasifolia
Cyclamen Atkinsi	Onophalodes verna
Daphne Mezereum	Polyanthus, of sorts
Dianthus multiflorus roseus	Potentilla inclinata grandi-
Daicis, various	flora
Erica mediterranea rubra	Penicula Davidiana rubra
var. nana carnea	Primulas, of sorts
Galanthus Redoutei	Polygonaria mollis
plicatus	Pulmonaria Chamebois
navalis	Scilla sibirica
flore-pleno	Spirea Thunbergi
Elwesii	White minor
Geum montanum	major picta
Hepatica rubra	Violets of sorts

—J. STEVENS.

A BEAUTIFUL NEW SHRUB.—One of the most strikingly beautiful plants we have seen for a long time is a shrub now in flower in Mr. B. S. Williams' nursery, Upper Holloway, under the name of *Ochna multiflora*. This plant is a standard, about 5 ft. high, with a bushy head surmounting a slender stem. The flowers, about 1 in. across, are in form like those of the Strawberry, but of a beautiful clear yellow. After the petals fall the five calyx lobes gradually increase in size and become fleshy, reflex, and assume a bright red colour. In the centre of these fleshy calyx lobes are four fruits about the size of small Peas, placed on a cushion-like recep-

tacle; these in a young stage are deep green, but when mature purple. A valuable fact connected with the plant is that the flowers and fruits are developed at the same time, as in the case of the Orange tree; thus, there are the golden yellow flowers in beautiful contrast to the bright red fruits with green or purple carpels. The effect of this singular combination of colours may easily be imagined, and this, combined with the elegant manner in which both flowers and fruit are borne, renders the plant entirely different in aspect from all others. The specific term *multiflora* is aptly applied, for the flowers are abundantly produced. As to its origin, Mr. Williams is in doubt, but probably it is one of the numerous plants that have been in cultivation in botanical collections for years, but in which it has never shown its true character. It is to be hoped that such a beautiful plant will soon be widely distributed.

GLONERA JASMINIFLORA.—Those who do not know this chastely beautiful shrub would do well to make its acquaintance, for few plants can compare with it for delicacy of texture, purity of colour, and beauty of form; indeed, no other plant known to us produces blossoms that possess so much the appearance of being frosted over. In form and size the flowers resemble those of the common white *Bouvardia*—not the big *Humboldtii* variety—and they are produced in clusters in a similar manner. At one time the plant looked as if it would be what cultivators call a “bad doer,” but now that its culture is becoming better understood, it promises to be as free in growth and flower as an *Ixora*. The Victoria Nurseries, Upper Holloway, possess many fine examples of this plant, which will shortly be in bloom.

FINELY GROWN EUCHARIS CANDIDA.—This beautiful bulbous plant is usually so much smaller than *E. amazonica*, that it is generally called the small *Eucharis*. Such, too, was our opinion until we saw some huge plants of it the other day in Messrs. Shuttleworth & Carder's nursery at Park Road, Clapham. In these the foliage was as broad, or even larger than that of *E. amazonica*, and were it not for its lovely blossoms, it would be well worth culture as a fine-foliated plant alone. The flowers never attain the size of those of *E. amazonica*, and that is its chief charm; for many purposes they are more suitable than the large spreading blossoms of the ordinary kind. This ample leaf development is no doubt the result of extra large and vigorous bulbs and good culture, for there are thousands of plants in this nursery that are of the usual size. The more we see of this plant the more we are convinced of its great value as a decorative plant; the amount of flowers which strong plants like those under notice yield is enormous. Now that it has been imported in such quantity, there is no reason why we should not see it in every good garden, as well as in the houses of those who grow for market.

IMANTOPHYLLUM MINIATUM SUPERBUM.—The ordinary form of this handsome *Amaryllidaceous* plant is a well known and fully appreciated greenhouse favourite, but it is far excelled by the several fine varieties of it that are now in cultivation, but which, nevertheless, do not appear to be much known. Of these one of the finest is the variety *superbum*, of which some admirable specimens are now in flower in Mr. B. S. Williams' nursery, Upper Holloway. From the older form of *I. miniatum* it differs in having larger trusses of flowers which are much superior both in size and colour, the latter being a bright orange-scarlet washed with orange-yellow. The contrast made by these bright colours with the deep green handsome foliage is very striking. Beautiful, however, as is this fine

variety, it is even surpassed by another which Mr. Williams has under the name of *Martha Reimers*. This bears a huge truss of flowers twice the size of those of the ordinary form, and their colour is superb. This will be in flower in a few weeks. Van Houttel and maximum are other fine varieties of this plant, likewise not yet in bloom.

KITCHEN GARDEN.

Finocchio.—I have just sown in a pot a pinch of *Finocchio* for my early crop, and I shall treat it like *Celery*. It is not the common *Fennel*, but (*F. dulce*) the true *Finocchio*. It is far superior to *Celery*, either for cooking or eating raw, and it is excellent in salad, as every one knows, who has been in Italy. I plant it out 1 ft. apart, and when it has swelled to a good thickness, earth it up like *Celery* to blanch.—JOHN WORTHINGTON, *Fishguard*.

The best Cucumber.—February is the month when most people raise Cucumbers for summer use. For general purposes and keeping up a constant succession of good table Cucumbers there is nothing yet equal to *Telegraph*, and though it has branched off into several slightly varying forms, which are sometimes claimed as improvements, yet the original variety, as sent out years ago by the Messrs. Rollinson, still stands in the foremost rank.—E. HOBDAY.

The Lyon Leek.—Almost every writer on choice vegetables makes mention of the gigantic Leeks which are shown at the autumn exhibitions in the border counties, and deplores the fact that the strains of seed which produce them are kept in the hands of a few amateurs whose names are known by their prize Leeks. The variety just named is undoubtedly the largest and heaviest of the race, and of great thickness and length. By sowing the seed in well prepared, light, rich, soil early in February under a hand-glass or frame, and gradually hardening the young plants off, finally transplanting them into hollow trenches on heavily manured rich soil, which had been deeply trenched the previous autumn, Leeks of this variety will be produced over 20 in. in length and 3 in. in diameter, with a weight of from 8 lb. to 5 lb. The special distinctive quality of this variety is its hardness, having stood unprotected during the last three winters with the thermometer frequently at some 10° below zero, and quite uninjured.—J. THOMSON *Rozburgh Street, Kelso*.

SHORT NOTES—KITCHEN GARDEN.

Cabbage Broccoli.—This, which is in use here now, is most excellent in flavour. It is very solid and large, distinct in character, and ought to be in every garden.—J. W. *Fishguard*.

Leeks in Covent Garden are often large and well-grown; but the whitened portion of the stem is far too short. Where are they well grown for any market? Why is it London gardeners neglect to grow Leeks to their proper state?—W. P.

Cropping building land.—I recently bought an acre of land for building purposes. It had been formerly used as a garden. The soil is a dark loam, and in one part stiff. As I do not at present wish to build, what is the best crop to put in it to yield the most profit? I take possession on March 1.—JOHN COX, *Marfleet, Hull*.

Vegetables for shady places.—I have a slip of ground behind my house, I may say at the kitchen door, which I have manured and limed. Unfortunately it is overhung with Laurels, and no sun gets near it. What vegetable can I plant under such conditions? The soil is deep and rich.—C. E. H. V.

Gas water.—How can I best utilise the gas water or liquor floating on a tar well? Through weak and below the measure of our gauge, it contains a good deal of ammonia. Therefore, diluted with water it might form a good stimulant for plants. Will some one kindly say what quantity it would be safe to use for that purpose mixed with water?—READER.

Pear tree in bloom.—A pyramid *Pear* (Louis Bonne of Jersey) in my garden opened its first blossoms on the 15th, and will be fully in bloom in a few days should the weather continue mild. The same tree in the same position began to flower on May 3, in 1879; April 13, in 1880; and April 18, in 1881. Thus it is flowering some two months before its normal time, and what is not a little singular is its outstripping my *Apricot*, which usually precedes it by a month.—E. H. E. *Enfield*.

Cuttings and plants by post.—I have found the post to be a useful medium for conveying cuttings or small plants of any particular variety which it may be desirable to add to a collection when it is not convenient to have an order made up to come by rail, but my experience lately of cuttings received by post has made me somewhat doubtful as to the benefits which it confers. Some who advertise that they send cuttings and small plants by post are particular to mention their perfect method of packing for postal transit, and if this consists in getting the largest number possible into the smallest space, the packing certainly is perfect, for I this week received eighteen varieties of *Chrysanthemum* cuttings that would go into one of Bryant and May's half-penny match boxes. They measured 1½ in. long, and are quite worthless. Another complaint I have to make is, that if an order is sent accompanied by the money, the cuttings or plants are not forwarded sometimes for two months—often a great disappointment. If not in stock, word ought to be sent to that effect, so that they might be obtained elsewhere, but when advertised one expects to receive them, especially when, as I have said, the money accompanies the order.—W. N.

OBITUARY.

MR. CAREY TYSO died at Wallingford on the 2nd inst., aged sixty-seven. He had been a grower of *Anemones* and *Ranunculuses* for many years, and his name will be familiar to our readers in connection with these flowers, many very good kinds of which he raised from seed. He was also the author of short treatises on their cultivation. Some three years ago he sold his business to Messrs. Pounsett & Son and retired.

DIED, at Spring Valley, Morningside, suddenly, on the 15th inst., DANIEL MACKENZIE, aged seventy-four. He was for forty-six years the representative of Messrs. Lawson & Son and the Lawson Seed & Nursery Co., Edinburgh.

Crickets.—I am overruled with these. What is the best mode of destroying them?—G. H.

Boiled lime.—Will Mr. Wood, of Kirkstall, kindly tell us how to prepare the “boiled lime” he gives his alpinists?—M. B. A.

Books.—J. F. THE GARDEN.—*Beginner*.—Faxon's “Gardener's Dictionary.” As regards *Agnes*, see last week's GARDEN, page 73.—What is the best book on land measuring and ready reckoner for the same?—G. S.

Names of plants.—*F. M.*—*Cyrtopodium* Isigne.—*W. C.*—*P.*—Species of *Polypodium*; 2, *Aspidium scolopendria*, variety of 3, *A. Adiantum nigrum*; 4, *Asplenium Tri homanum*.—*Constant Reader*.—*Anemone stellata* var., *A. pavonia* var.—*J. Matheson*.—*Nuttallia cerasifolia*.—*J. M.*—It is impossible to name the plant of which you send such scanty material.—*J. C.*—4, *Hardenbergia monophylla*; others next week.—*R. D. G.* (*Cahore*).—The *Orchid* was too much damaged to recognise.—*J. W.*—The *Heliolepis* you send appears to be what is called *H. antiquorum*, one of the *H. orientalis* group.—*M. E. C.*—*Omphalodes verna*.—*F. T. D.*—4 is *Chrysanthemum frutescens*; the others we cannot name with accuracy, for please remember that we cannot in every case name plants by leaves only. Send when in flower.

COMMUNICATIONS RECEIVED.

A. G.—G. S. S.—D. T. F.—W. D.—R. S.—D. W.—N.—E. H.—E. S.—W. W.—S. E.—D.—K.—R.—H.—B.—W.—N. H.—B. W.—G. J.—P.—J. S.—H. W.—K. & Co.—W. J. M.—H.—H. C.—A.—D.—W. E. G.—J. G.—F. G.—W. H. C.—W. J. M.—W. C.—J. S.—C.—B.—J. H.—F. W. M.—T. D. H.—L. A.—K.—B.—R.—T. C.—C.—P. B.—G. H.—H.—J. S.—T.—L.—J. N.—J. D.—C.—J. C.—W. J. M.—W. C.—H. A. W.—G. S.—G. L.—E. L.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

DR. TRIMEN ON A "PRACTICAL HEAD."

PERMIT me to reply to the editorial note which appeared recently in a contemporary on a report by the new director of the Ceylon Botanic Gardens, Dr. Trimen. The report referred to is on the work done in the garden of which Dr. Trimen is the head, and in this report the following startling remark is said to occur: *Here (Ceylon), as in all similar establishments, scientific knowledge and sound utility have gone hand in hand, and a "practical" head of the gardens has meant stagnation of enterprise and the decline of influence and ability to be of public usefulness.*" This reference to horticulturists appeared in the pages of a journal which ought to have been the last to lend itself to the publication of so gross a libel on a class to which it is chiefly indebted for its existence, even if its own sense of fairness and truth was too dull to perceive the injustice of such a remark. When such a statement is not only permitted to appear, but is also endorsed by a paper which has always posed as a gardener's journal, such conduct deserves the strongest censure. Who is Dr. Trimen? and what has he accomplished since he has been in his present position? and what opportunities has he possessed for acquiring such a knowledge of the administrative capacity of "practical" gardeners as would enable him to form anything like a correct idea on the subject? Before he was appointed to his present post, Dr. Trimen was known as one of the botanical gentlemen at the British Museum. His knowledge of plants was limited to herbarium specimens; he knew next to nothing of plants in a living state, and was wholly ignorant of "practical" horticulture. The only qualification this gentleman possessed for the post of director of a garden was his knowledge of botany, cut and dried. His appointment to a position which, in spite of what he or the *Gardeners' Chronicle* may say to the contrary, requires considerable practical knowledge of plant cultivation, &c., for the proper fulfilment of its various duties, did not excite much interest in the gardening world here, as Ceylon is rather far removed from us. Still, there were murmurs in some quarters that a little "jobbery" had been done by powerful friends on Dr. Trimen's behalf. Be that as it may, the appointment was made, and Dr. Trimen found himself transported to a field where he was quite out of his element. "New brooms always sweep clean," and Dr. Trimen is a striking instance of the truth of this. He commenced as most beginners usually commence, and voluminous reports, much criticism of his predecessor's work, along with grand conceptions for the reorganisation of everything, were lavished on the gardening world by this energetic gentleman. Of course this killing pace will not last long, and we might allow our friend to cool down at leisure had he not taken to pelting with mud those to whom, forsooth, he has at present to look for instruction in his work. Dr. Trimen may prove worthy of the post he holds, and he may yet do something to prove his great superiority over his brethren, but he has not done it as yet, nor is he likely to do it if he attempts to climb by trampling and undervaluing men who are and have been in every way his superiors in everything connected with the work of botanical establishments. A purely scientific head of such establishments generally has a deter-

ring, paralysing influence on the real work, and I have no doubt that if Dr. Trimen continues to occupy his time with reports and plans, the gardening work of the establishment at Ceylon will be much better done than if he interferes. The difficulty is to keep such men from spoiling work they do not understand. Perhaps the Ceylon director is as fortunate as some others who hold similar posts to his, and have docile, practical seconds to do all the work whilst they blow the trumpet and take all the credit to themselves. When the achievements of such men as the late Mr. Molvor and the present superintendent of the Darjeeling plantations, Mr. Gammie, as well as many others who have worked and are working in the same field as Dr. Trimen have been equalled by the new Ceylon director, he can say that he has equalled the feats of "practical" botanists. Till then my advice is, keep quiet; first learn how little you know yourself before you attempt to instruct, much less sneer at others.

F. J. E.

[Though we dislike raising questions of this kind, this one is not without importance if rightly looked at. If a public garden be designed for a purely botanical purpose, Dr. Trimen is, no doubt, right, though his expression is unhappy and illogical, for have we not heard of "practical" botanists? The word is generally used in a good sense. We presume he really meant to say horticulturists when he used the phrase "practical head." He probably has not travelled much in Europe, and may not know that it has many examples disproving what he says. Perhaps he will disprove it himself in Ceylon! There is no reason, however, to go there to show that a garden may be in the last stage of disgrace and yet be wholly in the hands of a so-called scientific head. We are speaking from a horticultural point of view, and in recognition of the fact that most public gardens are made in relation to the horticultural wants of the country in which they occur. They are supposed to improve its gardens, enrich its forests or plantations, and be useful in other ways in improving the resources of horticulture, agriculture, and forestry. If we take Dr. Trimen to mean that horticulturists are in the wrong place in managing a garden, then the whole history of our best gardens is a delusion. We have been under the impression, from personal observation, that our best gardens owed a great deal to the Moores, Nivens, Frasers, Aitons, McNabs, Bains, and others who had a horticultural training, though they were not always deficient in botanical knowledge. We should like to see a copy of the report to which reference is made.]

THE ROCK GARDEN IN MARCH.

It is not often we are enabled to record such a wealth of bloom among hardy plants in the early days of March as we are this year. Thanks to the exceptionally mild winter which we have had and the present continuation of congenial weather, Mr. Whitehead's extensive and richly stocked rock garden at Southwood, Bickley, is now teeming with a wonderful variety of plants in bloom, some very beautiful, and all interesting. The brightest display is made by the little *Erica carnea*, which is evidently a favourite here, for the whole face of the rock garden is aglow with its neat little tufts of rosy purple blossoms. It is one of the best of the early Heaths, and a satisfactory little shrub to grow anywhere. That beautiful Heath, *E. codonodes*, which is usually rather tender, is here wreathed with myriads of its small white bells. Of course the commoner types of flowers, such as *Crocuses* and *Snowdrops*, are abundant. Among the latter *Galanthus plicatus*, the Crimean Snowdrop, is very fine, but inferior to *G. Imperati*, which, without

doubt, is the finest of all, and should in all cases be preferred. The very distinct looking *G. Redoutei* or *latifolius* was not in flower, but all the other kinds were, and very pretty they looked nestling in little colonies beneath the shelter of shrubs. Among *Crocuses* such rarities as *C. minimus*, from Corsica, and the golden *C. Olivieri* were prettily in bloom, while bold clusters of *C. vernus* and its innumerable varieties, and the common yellow *Crocuses* add greatly in creating a bright display of colour. The early *Scilla*, too, assert themselves boldly, the brilliant little *Scilla sibirica* contrasting strikingly with its more sombre tinted congeners. Associated with it were also *S. bifolia* and its varieties, including the white and the Taurian kind (*taurica*), which is, we consider, the finest of all. The flowers of this superb variety are larger than those of the typical *S. bifolia*, of an intensely rich blue, and produced numerous on reddish-tinted stems. It is not common, but those who like a brilliant hardy spring flower should make its acquaintance.

Among the *Narcissi* was the exquisite little *N. minimus*, which, by its tiny growth, is rendered distinct from any other of the numerous sorts now in gardens. Its small rich yellow blossoms are scarcely more than 1 in. long, and are borne on stems but a few inches high. In the rock garden here it seems quite at home, and the conspicuous tufts to be seen of it indicate that it is not such a rarity as it is in some gardens. *N. minor* and others were also beautifully in flower; also the *Mayflower* (*Epigaea repens*), of which there is a fine tuft in the bog bed which will shortly be in flower, and, judging by the myriads of buds, there will be a fine show of its pretty, rosy, sweet-scented blossoms. It evidently thrives well in a damp, peaty soil, as it is growing vigorously here thus situated. Another little shrub that pleased us much was *Daphne Blagayana*, a rather new introduction from the alpine regions in Central Europe. It is of dwarf growth, with a few rigid straggling branches terminated by a dense cluster of pure white blossoms set off to advantage by a collar-like row of leaves. The blossoms are deliciously scented, and the plant altogether is a desirable acquisition to any rock garden. It is of easy culture in any kind of soil usually found in rock gardens. The charming little *Gentiana verna* is in full bloom, as is also *G. acaulis*, both of which enliven their surroundings by their brilliant blues. The blues, too, of the *Grape Hyacinths* (*Muscari*) are very welcome, especially when such handsome varieties as *M. Heldreichii*, *Gussoni*, and *Scozzizianum* are represented. The *Hepaticas* in little gatherings here and there about the place are very charming, particularly the big *H. angulosa*, which does well here on open slopes. This latter is much the best for cutting from, but does not grow so neatly as the others. The *Netted Iris* (*I. reticulata*) is in full bloom in the shape of fine tufts, and very beautiful it looks studded here and there among the lower growing plants.

There are numerous *Saxifrages* in flower, notably the pretty little *S. Burseriana*, of which two or three very distinct forms are represented. *S. oppositifolia* and its varieties, of which *S. pyrenaica maxima* is by far the finest, the blossoms being much larger and the colour brighter, are also charmingly in flower. Among other flowers may be named *Ionopodium acaule*, a charming little *Crucifer* that should occupy a space on every rockery; *Dondia Epipactis*, with its conspicuous golden-yellow heads; and *Dog's-tooth Violets* (*Erythronium*), of which there are several varieties, all beautiful. The purple-flowered variety, too, of *Polygala Chamæbuxus* was very finely represented by dwarf, compact plants. W. G.

ORCHIDS.

ORCHIDS AT CLAPTON.

At Messrs. Low's nurseries at Upper Clapton, where certain classes of plants, particularly Orchids, are grown on an extensive scale, one is pretty sure to find at any season of the year exceptionally fine displays of bloom. Just now the great attraction among Orchids is the Phalenopsis, which are magnificent. They occupy two or three houses, one of which is marvellously gay, there being hundreds of flower-spikes on the plants. The bulk of these consists of the lovely *P. Schilleriana*, amongst which, as might be expected, there is a wonderful amount of variety, all differing considerably from each other both in size and colour. The most prized are those in which large size and rich colour are combined. The copious spotting on some of the flowers is very beautiful. Beautiful as are these *Phalenopsis Schilleriana*, there is, however, another species with which the connoisseur cannot fail to be enraptured, and that is

P. STUARTIANA.—This charming new kind has recently been imported by this firm. In growth it resembles *P. Schilleriana*, and the blossoms, too, are similar as regards form and size. The colour of the petals and sepals is pure white with the exception of the two lowermost sepals, which are half white and half profusely spotted with chocolate-red on a yellow ground. The labellum and its wings are exquisitely spotted, too, with reddish crimson on an orange ground, which, contrasted with the pure white of the petals and sepals, is strikingly attractive, and different from any other cultivated kind. The finest plants we believe of this superb Orchid exist in Mr. Lee's collection at Downside, Leatherhead, where they have recently flowered. Another lovely addition to *Phalenopsis* is

P. SCHILLERIANA VESTALIS, a kind which has just flowered in this nursery. It may be best described as a variety of *P. Schilleriana*, with fair sized flowers with broad white sepals, with only the golden yellow crest on the labellum to mark its chaste purity. This white *P. Schilleriana* will no doubt be a great favourite.

Amongst other noteworthy Orchids in flower in this nursery is *Cattleya Leopoldi*, a species with dark chocolate-red sepals, and an intensely rich amethyst lip. *Oncidium cheiroporum*, the pretty little species with congested spikes of waxy yellow flowers, is still in blossom, a remarkable fact, as we saw it in flower here four months ago. *O. dasylepis* is a singularly attractive species, with pale lemon flowers about 1 in. across, having a conspicuous shining black blotch on the crest of the lip, which gives it a very striking appearance. *O. cucullatum* is one of the prettiest of all the smaller *Oncidia*, and as seen here in such variety it is really charming, and one that cannot be too highly recommended for general culture. A few of the *Dendrobies* are in flower, notably *D. philippinense*, which is said to be a variety of *D. aureum* (*heterocarpum*), but for garden purposes distinct enough from the latter species, inasmuch as it flowers most profusely in autumn or late in summer, and prolongs its bloom through the winter till spring. It has a soft and pleasing colour, but, unfortunately, unlike *D. aureum*, no perfume. Some remarkable varieties of *D. Wardianum* are in flower; also *D. luteolum*, a pretty primrose-flowered species; *D. fimbriatum*, and others.

LADY'S SLIPPERS are represented by a grand mass of bloom; probably it would be impossible to see elsewhere such a display as is now being made by *Cypripedium Boxalli*, the rather new species which comes, as it were, midway between *C. villosum* and *insigne*. Of this handsome

Orchid there are hundreds of plants in a mass in one of the houses, all with several flowers expanded. *C. Boxalli* is such a vigorous grower and free bloomer that it is quite as satisfactory to grow in a general way as the old *O. insigne*, and the fact that it flowers much later than the latter renders it all the more desirable. Among other *Cypripids* in flower are *C. Lowi*, a handsome species with spotted lateral petals; *C. levigatum*, in the way of *C. Stonei*, and quite as handsome; *C. Lawrenceanum*, a beautiful new species from Borneo, with prettily marbled foliage; *C. Hookeri* and *C. Argus*, of which there is a fine display of bloom representing a rich variety some being much finer and more handsomely marked than others.

The above are but a few of the Orchids in flower in this vast establishment, for there is house after house of *Odontoglossums*, *Masdevallias*, *Cattleyas*, *Dendrobiums*, and other popular Orchids which are more or less attractive throughout the year.

W.G.

HARDY ORCHIDS.

I HAVE read with great interest the letters of Mr. Douglas and Mr. Wolley Dod on this subject in your columns. The hardy Orchids, both British and foreign, are special favourites of mine, and for the last few years I have done all in my power to establish as many species as possible. The North American species have hitherto utterly baffled me. *Cypripedium spectabile* is the only species I have succeeded in establishing in the open border. I have three or four plants which have been in the ground four or five seasons, and come up stronger every year. *Liparis lilifolia* has established itself planted out in a glazed pit, but does not increase. *Habenaria ciliaris* flowered well the year before last, but died after it had bloomed. *Cypripedium acaule* behaves in the same way. I am convinced that the main reason why we fail to grow the North American *Habenarias*, &c., in England is the bad condition of the tubers when they arrive. They must be dug up as soon as they go to rest, and sent off immediately. They should be planted as soon as they arrive, and at a fair depth. If all these conditions were fulfilled I believe many species might be established without much difficulty. With the genus *Ophrys*, both British and Continental, I can do little or no good. I have tried them over and over again, but always without success; they dwindle on for a year or two and then die. Both the Continental species of *Nigritella* utterly refuse to grow. I have tried various Continental species of the genus *Orchis* during the last four or five years, but till last spring and summer without success; they would persist in coming above ground about Christmas, and always got off by frost.

In the autumn of 1880 I planted some tubers of the yellow *O. sambucina* about double the depth of those I had previously planted. They did not come above ground till the middle of February, and flowered well. I expect to see them come up very strong this spring. Last autumn I tried the same plan with tubers of *O. pauciflora*, *stabiana*, *pseudo-sambucina*, *undulata*, *provincialis*, *papilionacea*, &c., and, as far as I can see, with every prospect of success. If spared till another autumn I hope to try *O. longibracteata*, *pallescens*, *pseudo-pallescens*, and other species. A very fine variety of *O. pyramidalis* from Minorca appears to have established itself. It has stood two winters, and looks as if it would bloom this spring. The Channel Islands *O. laxiflora* has been out with me in the open border for four years, and throws up magnificent tall spikes of bloom. It gets stronger and stronger every year. Can anyone send me a white variety of this species?

The Lizard Orchis, *H. hircina*, I have had nearly 5 ft. high, but it died after flowering and I have now lost it.

Amongst the British Orchids, *O. latifolia*, *maculata*, *maculata superba* (Miss Hope's plant), and *conopsea* do magnificently well, and get finer every year. I procured a few tubers of *O. militaris* last summer, and they are now coming up very strong. *O. fusca* I want. *O. mascula*, *Morio*, *ustulata*, and *Habenaria viridis* and *bifolia* live, but do not increase in size. *O. foliosa* does very well, and increases fast. I am anxious to obtain tubers of the white varieties of *O. mascula*, *conopsea*, and *pyramidalis*. I have hitherto failed to grow the genus *Serapias*, but by deep planting I have great hopes that I may ultimately succeed. I should much like to obtain a tuber or two of the true *O. incarnata*, the occurrence of which in England (I think in Hampshire) was noted during the past summer. I do not think that the hardy Orchids are very particular about soil, provided it is pretty good. I find a mixture of peat, loam, silt, and rotted *Cocca* refuse with a little leaf-mould suits them very well. *Cypripedium macranthum* is growing strongly with me planted out in a glazed pit with a shady north aspect, and will, I trust, flower this year.

H. HARPER CREWE.

The Rectory, Drayton-Beauchamp, Tring.

Effects of fog on Orchids.—One of the most striking examples of the evil effects of dense fogs upon Orchid bloom we noticed the other day in the Royal Ecclet Nursery, Chelsea. Here in the *Phalenopsis* house there were, before the recent fogs occurred, some three or four hundred flower-spikes of *P. Schilleriana* in various stages of expansion, but the fogs cut them down in all directions, leaving only the strongest or those that were not sufficiently advanced to be injured. The house still, however, presents a wonderfully fine aspect, the combined grace and colouring of the blossoms that are left being very charming. Besides *P. Schilleriana* various other species are in blossom.

Orchids in flower at Messrs. Backhouse & Son's Nurseries, York:—

<i>Angreum citratum</i>	<i>Dendrobium Wardianum</i>
<i>sequepedale</i>	sp. small white flowers
<i>Anellia africana</i>	from Borneo
<i>Brassavola glauca</i>	<i>Epidendrum amabile</i>
<i>Cattleya maxima</i>	eximius
<i>superba splendens</i>	<i>ibaguense</i>
<i>Trianae Backhousiana</i>	<i>variegatum</i>
<i>Butleri</i>	<i>Lelia albidia</i>
<i>Warszewiczii</i> in many	<i>Lycaste aromatica</i>
very fine vars.	<i>Skinneri</i>
<i>guttata</i>	<i>Masdevallia Harryana</i>
<i>Leopoldi</i>	<i>Lindeni</i>
<i>Coleogyne cristata</i>	<i>Maxillaria arachnites</i>
<i>ocellata</i>	<i>Harrisoniae</i>
<i>Cymbidium eburneum</i>	<i>Odontoglossum crispum</i>
<i>Cypripedium Argus</i>	<i>cirrhosum</i>
<i>Boxalli</i>	<i>gloriosum</i>
<i>insigne</i>	<i>maculatum</i>
<i>longifolium</i>	<i>membranaceum</i>
<i>perdinum</i>	<i>nebulosum</i>
<i>hirsutissimum</i>	<i>Rossi</i>
<i>Sedeni</i>	<i>majus</i>
<i>Roezli</i>	<i>triumphans</i>
<i>villosum</i>	<i>Oncidium Cavendishianum</i>
<i>Cyclopium maculatum</i>	<i>lucatum</i>
<i>Dendrobium aggregatum</i>	<i>Kramerianum</i>
<i>majus</i>	<i>Papilio</i>
<i>Cambridgeanum</i>	<i>sarcodes</i>
<i>crassinode</i>	<i>suave</i>
<i>litifolium</i>	<i>Phajus Woodfordi</i>
<i>Freemii</i>	<i>Phalenopsis Schilleriana</i>
<i>McCarthyi</i>	<i>Saccolabium ampulaceum</i>
<i>macrophyllum giganteum</i>	<i>Stunnei</i>
<i>nobile</i>	<i>Sophronitis grandiflora</i>
<i>Paxtoni</i>	<i>Trichopilia laxa</i>

Dendrobium Wardianum.—In my account of this Dendrobe at Fairlea House, Huddersfield, in THE GARDEN (p. 107), it seems I made a mistake, which you will perhaps kindly correct. After the growths are thoroughly matured, read: It is returned to the stove, where it remains until its blooms are expanded; it is then transferred to the greenhouse, as by so doing the blooms keep good very much longer than if the plant was kept in the stove. —H. HILLMAN, Fensy Hall, Huddersfield.

EDITOR'S TABLE.

A NEW BLUE LITHOSPERMUM.—A most interesting blue rock gem from Miss Jekyll, who says: "I send a flower of *Lithospermum rosmarinifolium*, also *L. prostratum*, for comparison. I find its name in your 'Catalogue of Hardy Plants,' but it is not offered by any of the best hardy plant nurseries, including Backhouse's and Froebel's. If it is truly hardy, why is not so good a thing in cultivation? It cannot be hard to get, as it grows plentifully in the island of Capri, and probably other parts of the Mediterranean district. This flower comes off a plant I had by post from the native habitat early in January; it was potted among many others, and stands in a cold frame. Two days ago I found that some of the plants were covered with these fine flowers." The colour is very beautiful—a lighter blue than the better-known plant Miss Jekyll mentions, and with deep veins going down through it. We shall not be surprised if this proves a great gain, and hope we may be able to increase it.

SPRING FLOWERS.—A spring garden in a small hamper from Miss Owen! It is delightful to see the many recent additions to our garden flora so early in the year. They have made us rich in lovely flowers where the climate is at all favourable, or indeed anywhere out of this smoke-begrimed London. The strength of the early *Scillas* (*S. bifolia* in particular) from this Irish garden, the glow of the scarlet *Windflower*, the gold of the *Daffodils*, the bells of the *Snowflake*, appearing nearly as early as the *Snowdrop*, rich leafy *Primroses*, the delicate lilac heads of the *Himalayan Primroses*, immense white transparent *Crocuses*, and gold-laced *Polyanthus* is pleasant to see. Among the various *Primroses*, British and foreign, the clear and distinct colour of *Primula rosea* is effective, and so is the yellow *Auricula*, which smells of spring and balmy things. The first *Dog's-tooth Violet* is also welcome to us, and so is the purple of *Henderson's Aubrietia*.

THE WHITE *SCILLA BIFOLIA* is sent from Glasnevin, but it is not at all so strong and handsome as the blue form of the same plant, though it is desirable for the sake of variety and its pleasant starry sparkle where well grown.

SAXIFRAGA OPPOSITIFOLIA.—FROM Glasnevin come the best sheets of the white variety of this *Saxifrage* I have seen from a botanic garden. There they seem to know how to treat it well. With it also comes the charming purple kind and its large rosy variety which is so good in colour.

THE ABYSSINIAN PRIMROSE.—Some of this in a very nice state comes from Holker Gardens. It is interesting in the presence of so many hardy *Primroses* and their varieties to have this excellent one for the greenhouse, and even the window. Its soft yellow flowers and mealy leaves are good and distinct.

THE GREAT DAFFODIL.—The noble major *Daffodil* comes to us from College Gardens, Dublin—not so large in bloom as we have seen it, but very tall, and always grand in colour and form. The flowers will, no doubt, get larger a little later. This garden may be said to be the home of this fine *Daffodil*, which, we trust, will have a thousand homes before many years are over.

THE MEZEREON also comes from the College Garden, with many dense-set flowers. How is it

that it is so often starved and sticky and poor in bloom? People do not seem to care enough about it, and stick it among shrubs and anywhere. It ought to be grown well, for its own sake, in groups or beds. How about a bed of this hardy *Daphne* with a groundwork of spring-flowering *Hellebores* beneath it?

THE NEW AND BEAUTIFUL *CHIONODOXA* likewise comes to us in fresh and nice condition from the College Garden from Mr. Burbidge. This is truly a rival of our finest spring flowers, if not indeed the queen of all *Scilla*-like plants. The delicate white centre, contrasted with the cerulean blue of the outer half petal, is a new charm among the flowers of spring, many and varied and lovely as they are.

TWO WELCOME PRIMROSES come from Glasnevin—*P. cashmeriana* and *P. rosea*, both good additions to our garden flora. The delicate lilac-purple heads of the *Cashmere Primroses* are very pretty, and the *rosea* one no less so. We shall soon, no doubt, see various *Primroses* hitherto grown in pots and frames vigorously grown in the open air, in which case only is their true value seen.

HOOP PETTICOAT NARCISSE.—These are creatures of the warmer south evidently, as it is only here and there one sees them doing well, and yet Mr. Ewbank's garden ought to be warm enough for them. He sends several—among them the white, which is, indeed, a fair flower, and which we hope he will succeed with, as we have never had the happiness of seeing it strong and full of flower in the open air.

A LARGE SCARLET WINDFLOWER.—An immense scarlet *Windflower* about 4 in. across comes from Mr. Ewbank—a flower that makes us hope there will be no difficulty in increasing it, so that there may be a large stock obtainable from our gardens generally. It is one of those flowers which make one wish the hybridising art, or any similar one, were not known just at present. The flower is as good as it need be.

OROBUS VERNUS.—A bunch of this from the College Gardens reminds one of an old friend, always in the front rank of perennials, though far from common and seldom well used. It is early as well as handsome, and deserves a little thought. To stick a thing with a label among a lot of other plants does no justice to a handsome plant. Grow it for its own sake well, or group it with some one or two other things that may help it, but in any case not near.

IRIS RETICULATA.—This once rare flower is now setting out its gold and purple charms in many a garden, and diffusing the delicate scent of *Violets* around where it grows. It comes to us from the Isle of Wight, but is blossoming in many districts in the southern counties at the present moment. Of all rich and delicate-looking flowers, this is the hardiest. How well it would look coming up among or near tufts and colonies of the early white-flowered *Saxifrage* alluded to above.

THE EARLY SAXIFRAGES that deck their solid dark tufts of green with large, pure white flowers are among the gems of our garden flora. There is a baby-like rotundity in the shape and make of the flower which, combined with the purity of colour and early sturdy bloom, go to make them so beautiful when seen happily placed on the rock garden. Such kinds as *S. Burseriana* and *Rocheliana* are valuable indeed,

and stand forth in a genus where many are pretty.

HARDY CYCLAMENS.—The foliage is the best part of these, and it is really admirable in its amplitude, distinctness, and fine colour. The flowers of most of the spring ones seem so much less good in form than those of the Persian *Cyclamen*. By the way, can this not be grown out-of-doors in the warmer districts? and has anybody given it a fair trial? Mr. Ewbank might succeed, as he has succeeded with so many things. Of course, there is no difficulty of cultivation; it is a question of warmth and shelter by dwarf bushes.

SOLOMON'S SEAL.—From Mr. George Carpenter good forced specimens of this old friend. It is a most easy plant to force, and it is well to prolong the season of so lovely a native plant. Many people who had never seen the *Solomon's Seal* out-of-doors and had never grown it as a garden plant have had their attention first directed to its beauty by forced specimens. It is so easily increased and grown that nothing whatever is lost by the practice. Of course it ought to be grown in the cool house, too, without any forcing in the proper sense.

A GOLDEN FRITILLARY.—One of the most solid golden flowers I think I have ever seen is *F. pudica*. Common though that colour is, the petals and stamens of this little plant being nearly of the same colour, the whole thing looks like a drooping bell of gold. The young plants seem to bear smaller flowers. The specimen sent is not so large as one we had from Messrs. Backhouse some years ago, but we hope it may grow larger in our gardens and increase, as these Golden *Fritillaries* are really new and sterling additions to our garden flora. From Mr. Ewbank.

FICARIA GRANDIFLORA.—This is a *Pilewort*, very much larger than the common one, both in flower and growth, and as such worth introducing in certain spots, preferring a warmer soil than that in which the common native plant does well. I was the first to bring this to the country, and take some interest in its welfare, though it is not so likely to prove desirable as a garden plant as for sunny spots near hedgerows or dry banks in the wild garden. It is from the south of France.

NARCISSE FROM DUBLIN.—A large *Jonquil* comes to us in excellent condition from Glasnevin, and with it also the small *Daffodil*, the Italian *Daffodil*, and the great *N. maximus*, which all show how happily these flowers get on in the Green Isle this year and every year. The *Cambrian* form of the common *Daffodil* is also sent. It is a graceful flower. The *Narcissi* should be well represented where they grow so well; but indeed they require no chosen home; they are made for all the land.

FORCED LILAC.—Mr. George Carpenter sends good forced *Lilac*, and says of it: "I have visited several large gardens of late, and have been surprised not to find forced *Lilac*. I feel quite sure its value cannot be known or its easy way in which it is forced. It might be had in flower as early as any of our spring flowers, and not nearly the trouble some of our forcing plants give. It will also stand in water well a long time in a cut state. I find the common sort will stand much better in water than the Persian kind. After they have been forced I plant them out in a sunny position, where they remain for two summers. The following autumn I take up and pot the required number, plunging

them in leaves till they are required." We should like a description of how the Continental plants are prepared for forcing. The Continental people adopt some plan which gives strong trusses on quite small plants and on plants of all sizes.

SAXIFRAGA OPPOSITIFOLIA.—It is a pity that this lovely native mountain plant is so seldom seen in good, broad, healthy sheets with plenty of flower. Perhaps it requires the cool, moist air of the mountain, and is best with a consequent slow, sturdy growth; still, in gardens where people have the courage to place such plants perfectly exposed, it does pretty well even in our southern counties. But in gardens where vegetation is so often vigorous, if not luxuriant, this and many similar plants are overshadowed by their neighbours and quickly weakened or killed. At this season it must certainly be worth while going to see masses of it covered with these well-formed, little rosy cups, of which some come to us from the garden at St. John's, Isle of Wight.

COLOURED PRIMROSES.—Mr. Hillman sends a few blooms of these from Fenay Hall, Huddersfield. He says: "Every bloom was picked from seedling plants, the seed of which was sown on February 16, 1881, in rich sandy soil in a shallow box, which after sowing and putting loose glass over the top, was placed in a house kept at about 55° until the young plants had made one rough leaf. They were then taken to a cold frame, where they remained in the seed box until early in the summer, when they were planted 6 in. or 8 in. apart in richly prepared ground. The strongest plants commenced flowering in August, and have kept on flowering more or less ever since. During the late fine dry weather many of the plants were one mass of bloom; but the last few days' rain and wind which we have had have done much to spoil their beauty. The seed, a small mixed packet, purchased from one of our leading seed firms, yielded about 150 plants, a percentage with which I am perfectly satisfied, considering the quality and varied colours of the produce. These seedling plants were lifted from the nursery bed in November last, and with others were planted in the flower beds and borders, in which they have flowered so freely. Polyanthus sown at the same time and similarly treated have done equally well.

GENTIANA VERNA comes not from the mountains or green hills, where it flowers earlier than on the mountains, but from that warm garden in the Isle of Wight where Mr. Ewbank manages to get so many plants from different countries all happy together. He does not believe so much in the chemical notion of soils for alpine plants. *Gentiana verna* has served for years for travellers and botanists as the type of what is vivid in alpine flower beauty; and it may also serve as an illustration of the stupid way in which alpine flowers are grown, or rather killed, in our gardens, and not merely private gardens where little attention was paid to such things, but in botanic gardens where some attempt was made to grow them. Every kind of coddling and molly-coddling was practised, combined with occasional roasting on a heap of dusty clinkers and other rubbish of that kind. Everything was tried but the sensible thing of giving the plant a solid, moist, loamy soil, in which the plant could grow, full exposure, and complete isolation from tall and vigorous plants. During the years it perished any number of theories could be recorded on the way to grow alpine plants, and it was taken for granted they could not be grown.

EPIGÆA REPENS.—Can anyone oblige me with blooms and buds of the Mayflower of New England, which I want to figure?

ROSE GARDEN.

Wild Roses.—Will anyone kindly let me know to which species of indigenous Roses the different Briers (Sweet Brier, wild Brier, &c.) are to be referred? Is there another Rose called Scotch Brier or Scotch hedge Rose? and to which species does it botanically belong? A precise definition of these terms would greatly oblige.—A CONTINENTAL READER. [The Sweet Brier is *Rosa rubiginosa*. The wild Brier as generally understood is *Rosa canina*.]

Green Roses.—I have a green Rose, evidently a climber. It grows wonderfully well, but the soil is marl and suits Roses, which are generally most beautiful in it. My plant is out-of-doors, but trained on the wall of a small forcing house; the heat which it gets is, however, not great. For two or three years it was covered with buds, one of which opened—a pretty little green Rose; the others fell off. The last two years we have had no flowers, but it is always in full leaf, the foliage keeping on all the winter. A friend in Northamptonshire gave it to me; she kept it in a pot in the greenhouse, but it never flowered; she had it sent from America. I have tried two or three branches trained inside the house, but these did not prosper. Perhaps someone could give me a little advice as to how I could make it bloom.—C. H. C.

Planting Roses out of pots.—There is a strong temptation during mild weather to plant; but in the case of Roses in pots, that have had the shelter of pits or frames all winter, it is better to wait a few weeks longer than to risk planting them out, with the possibility that they may be subjected to a sharp frost before the winter is over. Roses in pots, and young ones in particular, are somewhat tender this season, owing to there being no cold weather to harden them, and they have not many roots to sustain them. As to growth, our Roses (both under glass and in the open air) are furnished with young shoots and tender foliage; and to risk planting out any that have been at all sheltered would be very unwise. A few that we want for a special purpose we have put into larger pots, with a view to their making more roots; and, in order to induce them to continue the growth they have commenced to make, we must find them shelter under glass until the cold winds of May are over. All who have Roses in pots ready for planting I would advise to adopt this plan, as under such treatment the plants will not be subjected to any check; on the contrary, they will go on forming fresh roots and making growth at the same time. I have on many occasions found that nothing whatever is gained by planting Roses out of pots until after the middle of May, and then they should be treated carefully. Some fine soil should be placed round their roots and pressed firmly to them; they should be well watered after planting, and should receive water as often as they require it during the summer. Roses turned out of pots in May, in a suitable soil, will generally yield a few very fine flowers in August and September. The Roses that were protected in the autumn for the purpose of affording them shelter may now be uncovered slightly—i.e., those that were protected where they were growing—but sufficient protection must still be left to guard against sudden frost. Those that were potted may be exposed to more air, and even brought out to the front of a south wall on mild days, but there must not be any hurry to get them planted; the first week in April is soon enough to get them out into open quarters. In the meantime the soil, where necessary, may be prepared for them. If they have grown many years in the same soil, it is a good plan to take away a portion of the earth immediately where the roots have grown, and to replace it with

three parts good loam and the fourth part well rotted manure. In this the roots will thrive and the plants make vigorous growth.—J. C. C.

PLANTS DIFFICULT TO FLOWER.

CAN you advise me as to the treatment of the following plants which we have had for years, but have failed to flower, viz. *Akebia quinata*, *Corynostylis hybanthus*, and *Antigonon leptopus*—W. H. M.

Antigonon leptopus.—How to flower this plant is a question not unfrequently asked by those who are acquainted with its beauty either through descriptions or figures. So far as I am aware, only one instance of its flowering in this country is on record, namely, that of Mr. Bull, who flowered it soon after its introduction. From this plant the figure in the *Botanical Magazine* was prepared, a figure which, according to the descriptions of those who have seen the plant growing wild, gives but little idea of its beauty. In a previous number of THE GARDEN I related my experience with the *Antigonons*, and despaired of ever being able to hit on the right treatment for the production of their flowers. Since then, however, I have been encouraged to try again by the information that in Washington A. *leptopus* flowers freely if kept in a greenhouse and rested during the winter, and on the return of summer planted out in an open border and allowed to ramble over neighbouring plants and shrubs. Certainly this hint is worthy of attention, and it seems not at all improbable that similar treatment here may have equally good results. In the neighbourhood of London I am acquainted with several who have large and healthy plants of A. *leptopus*, but which never flower, and it may be that exposure during warm weather is what is wanted to ripen the wood and produce stout vigorous growth before flowers can be had. The best suggestion I can offer is this last; at least I am satisfied that ordinary stove temperature will not suit the *Antigonons*.

Corynostylis hybanthus is a free growing stove climber, but not one of the most satisfactory as regards its flowering proclivities. We have succeeded in getting several fair displays of its ivory-white, sweet-smelling blossoms by growing the plant in a stove trained along a rafter and treating it liberally during the summer. In winter water is withheld and the plant allowed to rest. As soon as it shows signs of starting into growth water is given, and on the flowers appearing a little liquid manure is administered to assist their development. The flowers are borne generally about the middle of February. Brazil is the home of this beautiful plant, and I believe several very distinct varieties have been introduced at various times to this country, all of which well deserve attention. I believe that when we get rid of the thick shading which we are now so fond of using during summer, and allow plants which naturally grow under a scorching sun as much of our less intense sunshine as possible, along with, of course, the necessary amount of humidity and fresh air, we shall find less difficulty in growing and flowering the glorious produce of the Tropics than is nowadays often experienced.

Akebia quinata.—In the warmer parts of England this plant grows and flowers freely out-of-doors. We have a good plant of it growing against a south-west wall, where it has been for the last three years, and has flowered every spring. Owing to the mildness of the present season, this plant is showing flowers already. Fortune says, "I found the *Akebia* growing on the lower sides of the hills in hedges, where it was climbing on other trees, and hanging down in graceful festoons from the ends of their branches. The colour of the flowers in China is of a dark brown, not unlike the *Magnolia fuscata*, and they are very sweet-scented; indeed it was the delightful fragrance of the flowers which first attracted my attention to the spot where the plant was growing." The fragrance of the flowers of our plant is not so strong as it appears to be in its native country. B.

COBHAM HALL, KENT.

THE annexed illustration should have accompanied our account of this place (p. 19), but through an unforeseen delay in its preparation, we were unable to supply it. It represents the south front of the hall, viewed from the park across the flower garden, showing the bold disposition of the tree and shrub growth, and the absence of any monotonous formality, a striking characteristic of this fine old place.

NOTES AND READINGS.

FRUIT AND VEGETABLE TRIALS AT CHISWICK.—In the annual report of the Royal Horticultural Society the labours of the scientific committee are disposed of in a line and a half, but it is gratifying to find that Chiswick has been doing some good work, and contemplates more. Hardly sufficient credit is given to Mr. Barron and his charge, we think, but it is noticeable that the garden and its doings always bulk largely in the report, and but for which the report would be rather disappointing.



Cobham Hall. View showing principal front and flower garden. Sketched January, 1882.

The public could wish to read more about Chiswick and what goes on there. The proposed trial of the numerous Raspberries, with the view of selection, suggests the channel of usefulness in which the garden can render and has rendered the most real service annually or periodically. There are many fruits and vegetables the value of which want determining by a competent tribunal in which cultivators would have confidence, and there never was more need for such services than at the present time. Selection should be the order of the day. Every department of the garden is becoming encumbered with innumerable varieties of kinds, many of them spurious.

LAPAGERIAS.—What express method of propagation is it by which the popular white Lapageria is propagated and sent by post to cultivators? By eyes? They must be tiny specimens, needing years of culture to make plants of them, for a sucker from one eye layered in autumn will make a plant 6 ft. high the year following, and produce a ball of roots that will require a 12-in. or 14-in. pot to hold. The multiplication of plants by the trade, and even private growers, show how much this plant is thought of. We fear many do not succeed in growing it successfully. Sufficient plants have

been produced within the last few years to supply all the gardens in England, and they are still disposed of in thousands at from half a sovereign to five guineas apiece, morsels of plants going for less and extra sized ones for more. Those who want plenty of flowers of the Lapageria should get good plants and layer them, and a couple of years will give them more plants than they can find room for. Cuttings make poor roots and poor tops and take long to root, but the post bag specimens must be multiplied more readily.

SEEDLING CINERARIAS.—The vivid colours, the distinct markings and good forms of these are likely to render the propagation of named kinds unnecessary in the future. A wonderful improvement has taken place in seedlings within the past few years, thanks to careful selection. At one time one was fortunate if he got a few fair flowers out of a packet of seed, the majority being poor compared with the named kinds; now the seedlings are all that one can desire in a Cineraria, grown either for the conservatory or for cutting purposes, and all the trouble of pro-

that bottled Grapes preserved their good qualities, one would not have thought much about it, but to say they actually grow better in the bottles is taxing one's credulity a little too far. Bottling the shoots with the bunches on them is a good plan in many ways, but it should be deferred to the last moment if the flavour of the Grapes is any consideration. We have had somewhat exceptional opportunities of testing the matter, and we never, since the bottling system became common, tested a Grape cut from the bottle after some time that was equal to one taken from the Vine, all other things being equal, and we do not expect ever to do so. It is many years since we, with many others, were struck with the impaired flavour of Grapes that had been cut from the Vines for a short while only for exhibition purposes, and although in their case the want of support in the way of moisture no doubt aggravated the evil, although the berries were not shrivelled in the least, still the effect was the same as in the case of bottled Grapes—the flavour had deteriorated, and even the taste was less sharp. The only advantage of bottling late Grapes, so far as the Grapes are concerned, is that it enables one to keep them in good condition when they cannot be allowed to hang on the Vines any longer, for we do not call late Grapes like Lady Downes and Black Alicante late till April and May.

THE HOME FARM is an institution that rarely has in any case paid expenses, and when not kept on for some special purpose or experiment it is difficult to discover its use. It is otherwise with the garden attached to an establishment; there is nothing to take its place; but even here there are certain things which the market is likely soon to supply at a cheaper rate than they can be grown at home. Putting aside Pine-apples, Apples and Pears may be mentioned, the foreign importations of which are more and more supplanting home-grown produce, being not only much superior to the latter in appearance, but of better quality—at least for the desert. It is found that the actual wants of even large establishments as regards fruit like the Apple and Pear are exceedingly moderate, and that it is cheaper considerably to supply the desert with these from the market. It is different with Grapes, Peaches, Figs, Melons, &c., which are not likely to be superseded by foreign produce. Early Potatoes from April till they are ready outdoors are another article that it is no longer worth while forcing at that season when economy of resources is a consideration, and even imported early Peas are becoming as cheap and good as Potatoes. Onions also can be bought wonderfully cheap and excellent. Broccoli is not dear in spring. The hardy fruits that pay the private gardener best and are acceptable as well as the Gooseberry, Currant, Raspberry, and Strawberry, all of which are in constant demand as long as they can be had, and it is worth while considering how supplies of these can be best prolonged by means of suitable varieties and special culture. It would not be difficult to show that a north wall of Gooseberries and Currants would be a better investment than Cherries or any other fruit that could be grown on such aspects, while late autumn and winter crops of Strawberries would be quite as acceptable as early crops and more easily produced.

PEREGRINE.

pagation by offsets is avoided. Besides, seedlings are also always the most vigorous and best growers.

PRESERVED MUSHROOMS.—Preserved fungi were lately exhibited before the scientific committee, but it is not stated how their preservation was managed, or its object. Not long since the question was put, could not Mushrooms be preserved so as to be useful for cooking purposes afterwards? The French do preserve them in more than one way—by drying and bottling, &c., and large quantities of bottled Mushrooms from Paris are used by cooks in England; but they are dear, and by no means equal to fresh ones. The common Mushroom is produced in immense quantities on the sheep pastures of Australia; a sheep farmer in that country tells me that they whiten the ground for miles at certain seasons. How glad we should be of them here in a cheap form. They would be more popular than preserved Australian mutton.

KEEPING GRAPES.—A writer in *The Field* wonders why many people complain of bottled Grapes deteriorating in flavour, and says that in his experience it is "exactly the reverse." His Grapes, after bottling, become sweeter, and in "every way pleasanter" to eat. If he had said

English plant names.—I most heartily concur in all "B." says (p. 107) on this subject. All of us should support and encourage any undertaking likely to remedy such a state of things as now exists as regards plant nomenclature. There is, however, doubtless some difficulty in selecting suitable names, but the prettiest and simplest are to be preferred. I think the Latin or botanical

name should have the first place, then the English name. When such an arrangement shall have become universal, I feel convinced that it will be a decided advantage to all concerned.—J. S. T., *Malvern*.

FLOWER GARDEN.

EARLY SPRING NOTES.

THE first Daffodil to bloom with this season has been N. Pseudo-Narcissus var. grandipennis, plate xi. in Burbridge's "Monograph," where it is stated to be in flower about the middle of March. The peculiarity of this Narcissus is the deep green markings of the perianth. It is odd that a double Daffodil should come the first. In other respects we are later this year than last, which I attribute to the absence of sunshine. Last year we had frosts, but the bright sunshine brought out the flowers earlier than we have had them this year. Saxifraga Burseriana flowered with us fully a month earlier, and so did Gentiana verna. We have had the former of these lovely alpine in bloom now for a fortnight on the open rockeries. They came quite as soon there, covered only by a sheet of glass, as in the cold frames. It has been a bad winter for Androsaces. They do not like our fogs at all, and the losses have been heavy. Although covered by squares of glass, they have been attacked by mould, and many have damped off. They did well with us last season during the hard frosts. Damp is evidently the greatest difficulty in Androsace culture; unless they are effectually protected from our winter rains they cannot be grown at all. It seems that our fogs are almost as fatal to them, and these we cannot keep off. We removed the mouldy parts as they became affected, and I see the plants are sprouting again. Chionodoxa Lucilla is in flower to-day. It seems to thrive in our climate as the twos and threes we planted together two years ago are coming up in good clumps. The Scillas and Hepaticas make a pretty show now on the rockeries. The purity and beauty of the white form of *H. angulosa* cannot be overpraised. The blue variety of *angulosa* is much larger and prettier than the single and double forms of *H. triloba*; but of all the Hepaticas, I think the double pink is the gem; it is like a sparkling ruby for brilliancy when seen in the full sunlight. Crocuses and Snowdrops are unusually fine and plentiful this year. *Galanthus plicatus* forms very robust and tall clumps when once established. I think it is the best of the Snowdrops. *Iberis Pruiti* is now beginning to flower, and it will continue in bloom for many months, and then after a rest will flower again in the autumn. This is likely to prove the most useful of the hardy Candytufts; it comes so much earlier than any other. Of the older hardy flowers we have in bloom *Omphalodes verna*, *Doronicum caucasicum*, *Erica carnea*, *Lithospermum prostratum*, *Orobis verna*, *Bulbocodium verna*, *Phlox verna*, besides odd flowers of late *Hellebores* and a host of other stray blooms on Primroses, Polyanthus, and sundry others which have never ceased to flower from autumn until spring. Of Primroses we could gather a large bunch any day if the sparrows would only let them alone, but they seem only to serve for the birds to feed upon at this season.

BROCKHURST.

Didsbury, Feb. 18.

Crocus destroyers.—In reply to Mr. Bradbeer (p. 108), I may say that the only remedy against mice is to trap them, and the best trap is a Bean or Pea tied on to the plate of an iron trap like that used for rats, but much smaller. Such traps may be got at any ironmonger's for about

6d. each. Sparrows may be readily frightened away by running a few lines of fine black cotton along the rows of Crocuses, just clear of the bloom. This may be done by a few twiggy sticks to twist the cotton around and support it in the position desired. If the Crocuses are in clumps the cotton may be threaded over them in the same way; as the sparrows touch it without seeing it they become alarmed, and are very chary in coming in contact with it again.—S. D.

THE FIRST HYBRID TUBEROUS BEGONIAS.

PROBABLY few plants ever attained so much popularity in so short a period as these Begonias, and the rapidity with which new varieties are placed before the public is astonishing. They are so easily raised from seeds that every grower of them ought to be a raiser of seedlings. The first step to be taken is to obtain the very best varieties from which to save seeds; as a rule, if the latter are sown early in the year, they will produce flowers freely by the end of the season. To sow them in a forcing house where the temperature is not excessively high, probably about 55° at night, with a gentle hotbed in which the pots or seed-pans are plunged. When the plants are large enough they may be pricked out and potted on afterwards, when they will grow quite as freely as ordinary zonal Pelargoniums. Mr. Seden, foreman to Messrs. Veitch, was the first person who raised a hybrid Begonia in this country, and from his seedlings have sprung a large proportion of the highly coloured varieties now cultivated in our gardens. The species he began with in the first place were sent home by the late Mr. Pearce from South America. They were *B. boliviensis*, *Veitchi*, *roseiflora*, and *Pearcei*. A variety of *B. Clarkei*, received from Major T. Clarke, was also used at an early date. The first hybrid form raised was *B. Sedeni*, the seed parent of which was *B. boliviensis*, and the pollen parent a species sent from the Bolivian Andes, but which was never named, as the hybrids were so much superior to it. *B. Sedeni* was raised in 1868 and distributed in 1870. This variety was awarded the Silver Floral Medal at South Kensington on the 2nd of June, 1869. As an instance of the rapidity with which seed can be saved, and plants from it flowered, I may mention that *B. Chelsoni* was raised from *B. boliviensis* in 1869, *B. Sedeni* being the pollen parent. It was sent out in 1871. In 1870 *B. intermedia* was raised, *B. boliviensis* being the seed parent and *B. Veitchi* the pollen plant; this was sent out in 1872. That same year *Stella* was raised by crossing *B. Sedeni* with *B. Veitchi*; also *Vesuvius*, one of the most useful for bedding purposes, being a strong grower and an abundant bloomer. This was produced by using *B. Clarkei* as the seed bearer, and *B. Sedeni* as the pollen bearer; both these were sent out in 1874. In 1873 *Model* was raised by crossing *Sedeni* with *Pearcei*, and *Excelsior* by crossing *B. Chelsoni* with pollen of *B. cinnabarina*. This last named species was sent out by Messrs. Henderson. *Model* and *Excelsior* were distributed in 1875. In 1874 *Acme* was raised by crossing *B. intermedia* with *B. Sedeni*; and by reversing the cross, *B. Sedeni* with *B. intermedia*, *Monarch* was produced. This last, a strong-growing, showy variety, was sent out in 1878, and *Acme* in 1876. *B. Kallista* was also sent out in 1876, and was produced from seeds of *Sedeni* crossed with pollen from *Stella*. *Emperor* was the produce of seeds saved from *B. Clarkei* crossed with pollen from *B. Chelsoni*. It first flowered in 1875, and was introduced to the public two years later.

Emperor is one of the best forms of the large flowering Begonias, and can be recommended either for pot culture or for bedding purposes. Those who saw this plant planted out in the Chelsea nurseries, with others of Mr. Seden's hybrids will not soon forget the dazzling effect which its large showy flowers produced. Queen of Whites was the produce of seeds saved from *B. roseiflora*, selecting the lightest coloured varieties until a

pure white form was the result; this was sent out in 1878. Now we come to Viscountess Doneraile raised by crossing *B. Monarch* with *B. Sedeni*. This was produced about 1877, although it was not sent out until 1881 along with *Admiration*, a cross between *B. excelsior* and *B. Davisi*. Mrs. Charles Scorer was the produce of seeds saved from Viscountess Doneraile, crossed with pollen from an unnamed seedling, which was not distributed; it was raised in 1878, and sent out with *B. rosea superba* in 1880. This last, by the way, was raised from *B. roseiflora* with pollen taken from an unnamed seedling. When *B. Davisi* was introduced it quite revolutionised this class of Begonia, furnishing quite a new type of a much dwarfier and more elegant habit than any hitherto known; its pollen was first used to produce the variety named *Admiration*. Then in 1879 and 1880 *B. Davisi* was freely used as a seed-bearing parent, the pollen parent being a variety it was not thought desirable to distribute; it was, however, a seedling of Mr. Seden's. Mrs. Arthur Potts, Miss Constance Veitch, and Mrs. Bennett were produced from seeds saved from this cross. The two first-named are to be sent out during the present year.

Such is the result of Mr. Seden's labours during the last fourteen years. Of course many others, since Mr. Seden began, have been hybridising, although he first gave them the materials. He is still at work in the same direction, and now that Messrs. Veitch have obtained the exclusive possession of the pretty winter-flowering *B. Sootrana*, distinct in its handsome orbicular leaves and bright rosy pink flowers, new winter flowering types will doubtless soon be produced.

Loxford Hall Gardens.

J. DOUGLAS.

CARPETS FOR FERNS.

I HAVE read with interest Mr. Jackson's remarks (p. 53) on this subject, but while endorsing all he says as to the suitability of the plants he names and the situation which he prefers for them, I cannot agree with him as to the perfect hardness of *Saxifraga sarmentosa*. It has doubtless proved all that he states respecting it at Bangor, but I have failed to winter it in several places when subjected to all weathers. Where it has managed to exist its appearance in spring has been anything but satisfactory; it should, however, have the fullest encouragement where it can be depended upon. *Campanula hederacea* formed with me a most pleasing carpet for Ferns; in the same bed were also *Cypripedium spectabile*, and in the spring of each year sprang up natural carpets consisting of *Polypodiums* and *Cystopteris*, which in a dormant state had accompanied the clumps of *Cypripedium* from their native home. *Arenarias* delight in a moist, half shady situation, and are admirably adapted for the dwarfest Ferns; indeed, no plant with which I am acquainted forms such a dense carpet of verdant green as the *Arenaria*. Another good plant, and truly a most useful one, is *Lobelia ilicifolia*, whose lovely miniature pink blossoms are borne in great profusion during the summer and autumn. These, combined with its Holly-like leaves, make it a most interesting plant. I have never tried *Campanula caspitosa*, nor am I particularly fond of it while we have such kinds as *C. pulla*, whose little bells of purple are so striking. Then there is *C. pusilla* and its varieties, all as dwarf as *C. caspitosa*; *Herniaria glabra* also forms a good carpet, being exceedingly dwarf; *Pyrethrum Tchihatchewi* will cover any bare spaces either in dry or damp situations, but as a carpet plant for Ferns the white *Camomile*-like blossoms with which the plant is studded might be an objection. The New Holland Violet (*Erpetion reiniforme*), another little gem, is suited for shady, moist situations, and is neat and effective and readily increased. Of Mossy Saxifrages, *S. Greenlandica*, *S. muscoides*, *S. hypnoides* and its variety *elegantissima*, and *S. Sternbergi* are among the best; the greater part of the Mossy section is well adapted for carpeting. These should be pulled into small pieces and dibbled about under the Ferns.

Acena Nova-Zealandie is a singularly interesting little carpet plant with crimson spikes of bloom scarcely rising one-third of a foot high; the bog Pimpernel (*Anagallis tenella*), too, forms a carpet mass of pink blossoms closely set on its carpet of green; nor must we forget the Woodruff (*Asperula odorata*), the snow-white blossoms of which are ever welcome. It is alike suited for damp and shade, and it will also endure drought; if damp and shaded it will be found to grow rather above the height suited for carpet plants. *Omphalodes verna* with its lovely blue flowers should also be borne in mind, as should likewise *Viola cucullata*, a very dwarf species well suited for a carpet situation. To these might be added many more plants equally useful for carpeting, but these are very dwarf, many of them not exceeding 3 in. in height, and all adapted to moist, shady positions. E. JENKINS.

GOLD-LACED POLYANTHUSES.

I HAVE read with great interest the remarks lately made in these pages regarding Gold-laced Polyanthuses, and hail with delight any hopes of their reappearance, but am rather doubtful as regards some of them. Mr. Brockbank would like to know the history of Kingfisher. It is not a Yorkshire, but a Staffordshire flower, and was raised a very short distance from where I write. "Exile" says the last he saw of it was nearly fifty years ago. I should say that was pretty near the first of it, for it can scarcely be more than that age now. It was raised from Buck's George by Charles Box, who was employed at Himley Hall gardens, near Dudley, and when it bloomed was handed over to Mr. George Addis, who distributed it, and that accounts for its bearing his name. The same pot of seed also produced another good flower called Staffordshire Lass, but it has long since gone out of cultivation. I am not threescore yet by almost twenty years, but I think I could tell Kingfisher either in or out of bloom, and there are plenty of old florists in this neighbourhood who could be trusted to name any Polyanthus that has been before the public during these last thirty years. Within twenty years I have seen a score or more of Kingfisher in the raiser's garden planted in the open border. I have myself possessed three plants of it, also of the true Regent and Alexander as lately as 1864; business then took me abroad, and during my absence they were lost. Lancer was raised in this district, and is still in several gardens near here. J. C. F.

NOTES FROM A BEDFORDSHIRE GARDEN.

SPARMANNA AFRICANA has been in flower with me in a cool greenhouse during the whole winter. Its beautiful white flowers have charmed all who have seen them. I wonder why this shrub, although it is old-fashioned, being of such easy cultivation, is not more often seen. *Statice purpurea*, too (is this the same as *Holfordi*?) has been very fine, and a great ornament to the greenhouse. A pretty contrast to its purple flowers has been the new pot Marigold, which has also been in flower all the winter. As for the *Heliotrope*, which I have trained over a wire arch, it has been smothered with blossoms. Our *Chrysanthemums*, having unluckily been terribly knocked about, and partly stripped of their leaves by the gale of October 14 last year before they were brought in, refused to open their blossoms when placed under glass, but withered away, and were cut down as dead. They soon began to shoot again and grow quite vigorously, and now these young shoots, 6 in. or 8 in. in length, are covered with flowers, and form very pretty, compact masses of bloom. Is not this a rare occurrence? I have also a small tree (*Pyrus Maulei* is, I think, its name) with lovely pink and white blossoms like the Apple, which casts its leaves in October, and in November puts forth an entirely new crop with blossoms, which were out at Christmas. The leaves are still on, fresh and green, much the same as they would be naturally

in June or July. I am curious to see what the tree will do—whether it will keep the present crop on through the spring, or shed them and put forth another crop in June. I should like to know what is to be done with our Roses; hardly one of mine has cast its leaves yet. When ought we to prune them, and how? HENRY BURNBY.

Waxenden.

MALOPE TRIFIDA.

As the time is at hand when all kinds of hardy annuals should be sown, a word in favour of this old, but beautiful, Malvaceous plant may be acceptable. It is one of about four species belonging to a genus of annuals, natives of the south of Europe, chiefly Spain and Portugal. *M. trifida* grows from 1 ft. to 3 ft. high, and has a spreading habit of growth. The flowers, which are plentifully produced somewhat late in the summer, are Mallow-like and of a fine crimson colour, pencilled with dark veins. There is a white variety (alba) also very pretty, and another, called *grandiflora*, which is much



Malope trifida.

superior to the type, and which should always be preferred. The flowers of this variety measure $2\frac{1}{2}$ in. to 3 in. across, and are of a bright crimson-purple. *M. malacoides* is the other kind in cultivation; it is similar to the others, the flowers being a bright rose and produced in profusion. These *Malopes* are all of the simplest culture, merely requiring to be sown in the open border in the end of March or the beginning of April. The soil in which they thrive best is a rich, moist, and somewhat light loam, and the young plants should be well thinned out, in order that they may have ample space in which to develop themselves. W. G.

ORIGIN OF CHEIRANTHUS MARSHALLI.

IN THE GARDEN, December 10, 1881, there is an interesting article on this plant by "A. D.," which, as regards culture, cannot fail to be instructive. I am the more interested in the subject owing to the fact that some thirty-five years ago I was slightly acquainted with Mr. Marshall, with whom it had previously originated. He then told me that it was obtained by crossing *Cheiranthus ochroleucus* with *Erysimum Perofskianum*, which fact makes it a more interesting subject than had it been obtained by crossing two species of the

same genus—assuming that *Cheiranthus* and *Erysimum* generically differ. In the latest edition of Paxton's "Botanical Dictionary," 1863 is given as the year of its introduction, which is a mistake, as it was in cultivation about Edinburgh not less than fifteen years previous to that date. When first introduced to the public it speedily became popular with those interested in hardy herbaceous and alpine plants. I was of that number, and grew it for several years, but not being so much interested then as now in the fertility and infertility of plant hybrids, I failed to note whether it matured seed or not. To the best of my recollection it did not; and as "A. D." has grown the plant for several years, he may be able to state the facts of the case, and thus confer a favour upon some readers of THE GARDEN, as he certainly would upon me. A. VEITCH.

New Haven, Connecticut, U.S. America.

PROPAGATING.

Caladiums.—These will now be starting rapidly into growth, and where it is desired to increase the stock of any of them to as great an extent as possible pot the corms, and while so doing take care they are covered with soil to the depth of $\frac{1}{2}$ in. or 1 in., according to size; then as soon as the young leaf has reached a height of 3 in. or 4 in. turn the plant out of the pot and remove the upper part of the soil till the corm is exposed, when it will be found that the young leaf proceeds, as it were, from a small protuberance thereon, and at its base there will be a number of young and vigorous roots. By the exercise of a little care the young shoot with its roots can be cut off with a portion of the old corm attached; then pot it in a small pot, plunge in a gentle heat, and keep it close till the roots reach the sides of the pot, when it must be hardened off and grown on as rapidly as possible, the object being to secure good roots before winter. After being thus treated cover the old corm with soil and plunge it in heat, when after a time other buds will push forth, which, if required, can be taken off and potted as just described. As the aim is to get stout corms the first season, this mode of propagating must be carried out as early as possible, every week's delay being a loss.

Seedling Ferns will now require careful attention. Many of them sown in the early part of last month will have reached the critical stage, i.e., just when the growing spores have covered the surface of the soil, as it were, with a dense green mat. If at this time any appearance of decay sets in prick them off at once or it will soon spread, and the whole will be lost. In pricking off any before the young fronds are thrown up crock the pot in which they are to be placed to within 1 in. of the top; they fill in very lightly with good open soil, say two-thirds peat, one of loam, and a fair proportion of sand all finely sifted. With a pointed piece of wood take up a small mass of the young plants, lay it on the surface, and press it gently with the finger into the soil. When a pot is filled in this way give a good watering and place it in a position where it will not be much exposed either to sun or air. If at any time a very thin delicate Moss makes its appearance on the soil remove it at once, for it grows so rapidly as soon to choke up and destroy all the growing Ferns.

Dahlias introduced into heat two or three weeks ago will be now starting into growth, and as soon as the young shoots are long enough take them off, insert them singly in small pots, and keep them close till rooted. Cuttings root more easily when taken off with a heel than without one, but if numbers are required the top of the cutting can be cut off when long enough and struck. Push on the propagating of all bedding plants as rapidly as can be done, and in the case of any stock plants not breaking into growth, as they should do when in heat, turn them out of the pots, remove as much soil as possible without disturbing the roots to any very great extent, and repot

them in fresh soil. As a rule, sour soil is the reason why the plants do not start briskly into growth. In such soil the roots remain nearly dormant, whereas in fresh soil they soon become active and vigorous, and top growth is the result. — T.

GARDEN FLORA.

PLATE CCCXXVI.—*PHALANOPSIS INTERMEDIA* PORTEI.

In the whole range of the Order Orchidaceae no genus is more prized than the *Phalanopsis*, and the variety *P. intermedia* Portei, so beautifully illustrated in the annexed plate, is one of the rarest and best in the section to which it belongs. It is a plant of comparatively recent introduction, having been introduced from the Philippines in 1867. Among the older and better known kinds, of which a full account is given in *THE GARDEN* (Vol. IX., p. 312), *P. amabilis* is the best and most useful, on account of its free growth and continuous flowering habit, and in the size and purity of its flowers it is not surpassed by any other kind, except it be the Bornean variety of *P. grandiflora*. Of *P. amabilis* there are several varieties, but the best we have seen for depth of colour combined with a large, compact flower, is Mr. Day's variety. *P. grandiflora* is a general favourite, though few succeed in growing it really well. When in good condition it produces magnificent spikes of bloom, surpassing *P. amabilis* in this respect. The variety *P. grandiflora aurea* is the best of its class. As a free winter blooming plant *P. Schilleriana* stands unrivalled, as, with a good stock of plants, it can be had in bloom from the middle of November till the end of April. It is a free growing plant, and some of the best varieties of it are nearly equal in size of flower to *P. grandiflora*. When in bloom it lasts a long time in perfection, and the beautiful mauve colour of the flowers is heightened by being placed in contrast with those of *P. amabilis* and *P. grandiflora*. *P. leucorrhoda* is a fine variety of the *P. Schilleriana* type, but it does not possess the beautiful foliage of the latter. It is a free grower, and flowers at the same time as *P. Schilleriana*. In colour the flowers are nearly white, and they are produced on fine branching spikes. It is a scarce plant. Another of the genus, quite distinct in colour from either of the above, is *P. Luddemanni*. The beautiful blending of purple and violet in the flowers of this species, which are freely produced on short branching spikes, renders it one of the most attractive of the group. It is a free grower, and generally produces on the old flower-spikes a young plant or two every season, which, when they emit young roots, may be detached, or they may be pegged round the mother plant, and thus help to form a large specimen. *P. violacea*, though a small-flowered form, is likely to find favour with admirers of *Phalanopsis*. The richness and distinctness of its colours would, I think, puzzle an artist to reproduce. So far this species grows freely with us. *P. Stuartiana* has found favour with good judges of these plants, and will doubtless become popular. In addition to the species and varieties just noticed there are several small-flowered forms, such as *P. amethystina* and *P. Wighti*, that are pretty and worth growing by those who desire to possess a complete collection of *Phalanopsis*.

CULTURE.—The whole of the above may be classed together as far as culture is concerned. They may be grown in pots, or in blocks, in baskets, or in cylinders, but we prefer growing them in the two latter. Our best plants are, however, in baskets, though between a basket

and a cylinder, when the latter is brought well up to the light, there cannot be much difference. In choosing baskets for these plants they should be somewhat deeper than those generally in use, and we like them made of stouter material than the ordinary baskets, as these plants enjoy having a good grip round a stoutish piece of teak. The baskets or cylinders should be filled about three-parts full of clean potsherds, with about three pieces of very fibrous peat placed about half-way through them to assist in keeping the crocks slightly moistened, both above and below the peat. Over the crocks, and rising up to the surface of the basket, lay straight pieces of charcoal horizontally, taking care to keep a perfectly clear passage through the layer of charcoal. On the top of the charcoal a thin layer of Moss should be placed, and then the basket is ready to receive the plant. This should be slightly elevated above the centre, and about 1 in. of the best *Sphagnum* Moss, with a few crocks blended with it, should be placed carefully amongst and over the roots. Water must be sparingly applied, just sufficient being given to keep the Moss damp till the plants commence to make new roots, when more liberal supplies will be needed, but at no time, not even when they are in full growth, should they be kept constantly saturated at the roots. When basketed in the way described the young roots seize on the pieces of charcoal at once, travel along them to the edge of the basket and soon get interlaced round the teak rods, where they are then in the best possible position for taking advantage of the atmospheric conditions surrounding them.

If the plants have made tolerably good progress through the growing season, they may require a larger shift the following year. In this case we clear away all old Moss from their roots with a syringe, and place them without further disturbance into baskets one or two sizes larger than those they were in, according to the strength of the plants. The space between the two baskets should be filled with crocks and charcoal, and a few more pieces of the latter are again interspersed amongst the roots, allowing them to project a little over the edges of the new basket. The whole is surfaced with Moss, and if the plants are strong and well rooted a little peat fibre may with advantage be blended with the Moss. Whenever the Moss gets into a soured condition or remains long without requiring any water, the sooner it is removed from the roots the better, as when they are in this condition for any length of time, especially during winter, the plants are almost certain to get affected with spot or rot. When this disease occurs there is no surer cure than drought at the root, with a rise of a degree or two in the temperature, but there will be no need to diminish the moisture in the atmosphere. After being kept dry for a few weeks the plants will start away with renewed vigour, and all trace of the disease will disappear. It is always advisable to give *Phalanopsis* a short rest after flowering by keeping the material round their roots just moist for a few weeks, but about the end of March or beginning of April they should be excited into fresh growth by gradually increasing the supply of water. We may here remark that we do not like to see a plant make more than two leaves in one season, as these are as many as well-rooted plants can plump up thoroughly; therefore if plants growing freely show a tendency to throw up any young leaves after the beginning of August, they should be kept drier at the roots, as foliage made at the end of the season rarely gets so finely developed as that made in summer, and it always lacks substance, and is the first to spot. During summer a considerable amount of moisture must be maintained in the

atmosphere surrounding the plants, and if the house is occasionally damped over with clear soot-water, and the pans on the hot-water pipes filled with the same liquid while the plants are making their growth, it will prove highly beneficial to them. There is one point in connection with the culture of these plants that we are convinced is of the first importance, and that is a constantly moving atmosphere; but this movement must be produced with warm air well charged with moisture. We must have houses arranged on a different system as to ventilation from any we now possess before we shall get really well grown *Phalanopsis*, and I am quite sure this genus alone, with the addition of *Sonerilas* and similar plants and a few Ferns for furnishing the recesses and other points far from the glass, would make a charming house. The temperatures in which we find the *Phalanopsis* flourish are 63° at night in winter, and from 65° to 68° during the day. A gradual rise from these temperatures should commence about March, and from May to September the night heat should not be below 70°, nor need it be over 75° except in very warm weather; the day temperature may range from 75° to 90° according to the brightness of the weather.

J. ROBERTS.

Gunnelsbury.

GARDEN DESTROYERS.

ROOT-EATING FLY AND CABBAGE FLY. (*ANTHOMYIA RADICUM* AND *A. BRASSICÆ*.)

THE English name of the first of the two flies which form the subject of this article is decidedly misleading, as the fly is perfectly harmless, but the grubs are by no means so, for they eat the roots of plants and are very destructive; however, as this name is used by various authors it is as well to keep to it. I have united this fly and the Cabbage fly together in this article, for they much resemble one another (though they may easily be distinguished) in general appearance; their economy is very similar, and the grubs are frequently found together, and are so much alike that it is difficult to tell to which species they belong, and they may be destroyed by the same means. When these insects attack a crop they are often the cause of very serious injury, and even of its entire destruction; they are often found in the roots of Cabbages suffering from anbury, or fingers and toes, but it has not been by any means proved that they are the cause of these diseases. Unfortunately, these flies are small and inconspicuous, and as the grubs feed below the surface of the ground, or within the roots of the plants, their presence is only discovered when the plants which have been attacked show by their unhealthy condition that something is amiss with them; it is then often too late to save them. These grubs attack the roots of Cauliflowers, Broccoli, Cabbages of all kinds, Radishes, and Turnips, by eating their roots at the crown or base of the tap roots. In destroying these insects we do not get so much help as we do in many other cases from birds and parasitic insects, as the grubs occupy positions in which they are tolerably safe from their enemies; they are, however, a prey to a small ichneumon fly, and the chrysalides no doubt are often destroyed by the birds when the ground is cleared of the crop and dug up, so that they are able to get at them. Various means have been tried for destroying and warding off the attacks of these insects. No doubt one of the most important is a proper selection of crops, for if Cabbages or Turnips are grown year after year upon ground which has become infested with these insects, there is no clearing it of them.

* Drawn from a plant in Messrs Low's Nursery, Clapton.



PHALAEOPSIS INTERMEDIA PORTEI

Where Cabbages and Turnips are grown, as soon as the crop is finished all the old roots and stumps should be burned, and the ground dug up as soon as possible; by taking these precautions, I am sure the numbers of the insects would be very much diminished. Plants that are attacked by these grubs generally flag in the middle of the day, and the leaves of Cabbages assume a leaden, and those of Turnips a yellow tint. When this is observed, an examination of the roots of a plant and the earth surrounding it will soon show whether these grubs are the cause or not; if they be, and the plants are past recovery, they had better be pulled up and burnt (not thrown on the rubbish heap, and care should be taken in handling them not to drop any of the grubs among the crop), and their holes filled with lime, strong brine, soot, or gas lime; this will kill any grubs which may remain in the ground. Plants which are not so injured as to be past recovery may probably be saved by watering their roots with one part of ammoniacal liquor from the gas-works to two parts of water, making sure that the mixture soaks well into the ground round the roots. Three or four applications should be given; this has been tried with great success. Before planting out young plants dipping their roots in a mixture of earth and cow manure has been found very useful, and so has mixing a small quantity of hot lime with the soil where each plant is to be. Manuring the

also contains the common house fly, the blue-bottles, or Celery flies. This genus, *Anthomyia*, does not contain many species, but among them is *A. ceparum*, the well-known Onion fly. *Anthomyia radicum*, the male of which is depicted in the accompanying figure, measures nearly $\frac{1}{2}$ in. in length, and $\frac{1}{4}$ in. across the wings when fully expanded; the eyes are reddish brown, very large, nearly covering the head. The thorax is grey, with five longitudinal black stripes; the body is pale ashy grey, with a central longitudinal stripe, three transverse bands, and the base and tip black; the legs are black and hairy; the wings are iridescent, with black veins; the body and thorax are sparingly covered with black hairs. The female is about the same size as the male, but the wings are a trifle larger, and the eyes are much smaller; the general colour of the insect is ashy grey; the thorax has four indistinct, rather darker, longitudinal lines; the body is rather narrower than that of the male, and has a rather darker, indistinct, medial stripe, legs black and hairy, body and thorax sparingly covered with hairs. A. brassicæ, the Cabbage fly, is much of the same size as the root-eating fly, and the sexes are also somewhat different in appearance.

The male is ashy grey and very hairy; the eyes nearly cover the head; the thorax has three interrupted, slightly darker lines down the back; the body is small, oval, with a band down the centre, and the edge of each joint black; the legs are black and hairy. The female is entirely of a pale grey colour, except a white face, and paler sides to the thorax; the wings are yellowish at the base. The grubs of both species are about one-third of an inch in length when full grown. They are legless, taper towards the head, which is pointed, and terminate very abruptly at the tail. The extreme edge of the last segment is furnished with several fleshy points, and in the centre are two dark tubercles, which are pierced by the apertures of the breathing tubes. The grubs of the root-eating fly are of a dirty yellow colour, and the chrysalides are oval, about $\frac{1}{4}$ in. long and yellowish in colour. The chrysalis case is merely the hardened and shrunken skin of the grub, so that at the posterior end the points on the last joint are still visible. The grubs of the Cabbage fly are yellowish white, and the chrysalides are reddish brown.

G. S. S.

Economy in heating.—"K. B.'s" letter (p. 98) is slightly contradictory, and his advice therefore difficult to follow. How can any one contrive to get a 14-in. steam coil to act as a boiler if he must "avoid wrought iron?" especially as this coil itself was once upon a time the subject of a patent. What sort of coil would be required to heat 3000 ft. of pipe if 32 ft. are necessary to heat 300 ft. and what sort of a domed furnace will it take, and how much fuel? None of the "patent boilers" I have seen are for such small quantities of piping, and I should like to know what unpainted cast boiler "K. B." would provide for, say, 1000 ft. interesting to know the kind of fuel burnt to cause such powerful smoke, particularly as it entered the chimney at such a "comparatively low temperature." No doubt his coil was 25 per cent. cheaper, as he made it himself (cast it, I presume), but very few of your readers are equal to such work. If "K. B." would kindly tell us what modern patent wrought-iron boilers he has tried, and how they have failed; and also the cast boilers of any kind he has found so vastly superior; he would be giving something tangible and that might be of benefit to those looking for some guiding principle in their weary search for economy in heating. No form, I think, of coil or boiler, whether wrought or

cast, can be truly economical, in which the greatest fire-heat strikes against or is imparted to a brick surface, and does not communicate its heat to something that benefits the houses to be heated.
—B. W. W.

FRUIT GARDEN.

PEACH TREES SHEDDING THEIR BUDS.

My Peach trees have been in the habit of doing this, and for a long time I could not ascertain the cause, but at length I found that it arose from fungus in the borders, which, having run through a large portion of the soil, had fastened itself on the roots of the Peaches, many of which were white with mycelium. Being so bad, I could plainly see there was no help for it but to renew the border, which we did by using fresh loam entirely free from herbage and vegetable matter, as it was evident these latter had been the means of bringing about the evil referred to. The border when first made was composed of fresh cut sods from a pasture, and being good loam the trees quickly filled the trellises with fine bearing wood which bore very fine crops of large fruit; but unfortunately a dry summer occurred, and being short of water we could never give enough to soak the soil properly, and as the fibre and vegetable matter, the material it contained, remained undecomposed they generated fungus. On taking one tree up I found that the fungus had forced its way under the main bark right up the stem, the wood and inner surface of the rind being quite white with it. The leaves, too, showed numerous brown pustules beneath, which in shape and size resembled Fern spores, and they ripened and floated about the atmosphere much in the same way as these do. Not only did the buds of these affected trees drop in the spring, but a good deal of the foliage also fell during the summer. As it is too late to renew the soil now I would advise "C. W.," whose buds drop, to adopt the next best course, which is to water heavily with strong lime water, and if a bag of soot is immersed in it and allowed to lie and soak for a time before using all the better, as the liquid will then form a most excellent stimulant that will have a sweetening effect on the soil. The way to prepare the lime water is to throw a quantity of unslaked lime into a large tub or tank, and then fill up with water, which, if allowed to stand for a few days, may be drawn off clear, in which state only should it be used.

There is no fear of applying the lime water too strong, as, however much lime may be put into the water, it will only take up a certain amount, and Peach trees, like most other stone fruits, are fond of lime, and only do really well when calcareous matter is present in some degree in the soil allotted for them to grow in. If absent in a solid form it may easily be applied in a liquid state, and the same to Vines, which are often greatly improved by its use. Bad as fungus is, it may be drawn out, as it cannot stand a wet condition of the earth, and only lives and spreads when a favourable state of things prevails, as may be seen in the spawning and management of a Mushroom bed. It may be that "C. W." has injured his trees by dressing them with a too strong mixture of Gishurst, a compound which, if used in weight of above 4 oz. to the gallon of water, is highly dangerous, and almost sure to cause a large shedding of the buds. I saw a house of trees some years back that were nearly ruined by it, and it is a great pity when they are tolerably clear and free from scale to use it or any other insecticide at all, and yet there are many who make an annual practice of daubing the branches as a preventive, and work much harm by so doing. If the bark should happen to be a little unclean it is far better to give it a scrub with a little soft soap and water, which may be done quickly with a narrow spoke brush, as that will go between the branches more easily than others of a different make. The stems and main branches of our trees, both in and outdoors, have been subjected to such a scrubbing, and the bark now is bright



Anthomyia radicum.

1, the male root-eating fly (magnified); 2, the grub (magnified); 3, the chrysalis (magnified).

ground with superphosphate has been tried on the Continent with great success, crops on ground enriched with this manure being untouched, while those on soil manured with horse manure or bone dust in the same neighbourhood suffered considerably. Gas-lime sown over the ground in early spring has been found most beneficial in keeping this insect away. It probably acts in two ways—by preventing the fly from coming out of the earth when it leaves the chrysalis; and it also keeps off the flies which may have come from other quarters and prevents them from laying their eggs on the crop. Both these flies may be found throughout the spring and summer, and during this time there are several broods. The grubs have been found in the early spring feeding on Radishes, and in June on Cabbages. When full grown, which is probably in about a fortnight or three weeks after they are hatched, they leave the roots within which they have been feeding and become chrysalides in the adjoining soil, and may often be found among the roots of a plant when it is pulled up. Within three weeks the flies emerge from the chrysalides and soon afterwards deposit their eggs at the roots of suitable plants. The chrysalides formed late in the autumn remain until the spring, when the flies are produced. Some of the flies are supposed to survive the winter in sheltered places.

The root-eating fly, or Cabbage fly, belongs to the large family of true flies, the Muscidae, which

and polished, which must add to its health. From what "C. W." states, it is very certain his management as regards ventilation, &c., is not at fault, and the fact of his trees outside on the same wall dropping their buds in a similar manner shows this, and that is why I am led to the conclusion that it is either caused by fungus in the border, brought about through having leaf-mould or other undecomposed vegetable matter there and becoming dry, or that the mixture of clay, sulphur, and soot had too much Gishurst in it, and, if so, that accounts for the evil. An examination of the soil and roots will show if the mischief lies there; but whether that be so or not, the lime water, if the border is drained, cannot fail to do good.

S. D.

RENOVATING AND GRAFTING OLD TREES.

THAT old trees in a barren, unhealthy condition may be greatly rejuvenated in appearance and made fruitful again I have repeated proofs, and as it takes a long time to get young ones to a size and strength sufficient to bear a crop, it is often worth while to take in hand the old ones and work at them in order to bring about their renovation. This may be done in a variety of ways, among which one of the best is to thin out and severely cut back the branches so as to induce the formation of young wood, as on this the blossom buds form. I remember a case of espalier Apples that were so crowded with spurs as to look like a hedge; and as they had not borne for years, the owner was about having them destroyed. I recommended him to convert them into standards which was done by cutting off all the branches but the two upper ones, and these were shortened back and left to form, as it were, the frame of the tree. The spurs were then thinned out, and the following spring those remaining broke with great strength, and made shoots during the summer from 4 ft. to 7 ft. long, up the sides of many of which flower buds showed themselves in abundance. As the season was favourable the year after these opened and set, and the trees have now large heads, and though not so clean and handsome in the stems as might be desired, they yield a fine lot of fruit. This could not have been got in anything like the time had young ones been planted, as they would have taken years in becoming established. Another way of treating old trees is to head back and graft them, and when that is done it is sometimes astonishing to see what effect it has, the whole character of the tree becoming changed. In the re-grafting of trees, choice of scions should be made from sorts that are known to do well in the locality, as much depends on that; it is of little use grafting if the tree is in a state of decay or decrepitude. To be a success, the roots must be healthy, and if they are that the renewal of topgrowth will be fast. The time to head back and graft trees is about the middle of March, as then the sap is in full flow, and the scions soon unite and become firmly attached. That the tree to be operated on may be in advance of the scions, it is a good plan to take these latter off some weeks before they are wanted, and lay their ends deeply in the ground at the back of a north wall or other moist shady place till they are wanted for use.

As the branches will be so much larger than the grafts to be placed on them, it will be necessary to insert the scions under the rind of the stock. This may easily be done by making a long slanting cut at the end of the graft—like that when forming a quill pen—when, by making a slit of corresponding length through the bark of the cut-back branch on which it is to be put, the scion may be inserted and kept close to the wood. To admit of this being done without bruising the graft it is a good plan to thrust under a hard piece of wood, trimmed smooth, and made the same form as that of the scion. The next point of importance is the tying which should be done securely by the use of soft matting without bringing too much pressure to bear. As soon as the tying is finished it is necessary at once to envelop the part with a plaster of clay to keep out the air. To prevent the clay cracking it should be mixed with equal por-

tions of fresh cow manure, which, having much vegetable matter in it, secures cohesion, and helps to maintain the whole moist. What throws fruit trees out of health as much, or more, perhaps, than anything else is the bark becoming unhealthy through parasites, such as Moss and Lichen, which ramify and stop up the pores of the tree. On the trunk and main stems the readiest way of dealing with these parasites is to scrape them off with some blunt instrument, and then dress over the affected parts with thick lime-wash, which is also the best thing that can be had for the branches. The readiest and quickest way of applying it to these is to have it just thin enough to syringe on, as by the use of that instrument a lot of trees may be covered in a very short time. In cases where they are affected with American blight, to which Apple trees are very subject, there is nothing I am acquainted with equal to paraffin, which is so searching and penetrating as to find its way into every crevice and soak through the oily coats of the insects. Paraffin, like lime-wash, may be syringed on or dabbed into the parts where the bugs are by the use of a brush. Paraffin alone is too strong, and may be used with three parts water, which should be hot, as then the two mix better and are more destructive to insects.

Besides suffering from the maladies referred to, fruit trees are often in a state of semi-starvation from overcropping and poverty of soil, the remedy for which is surface mulching and frequent soakings of liquid manure. The latter should be given during the summer and autumn, and the former at once, or in cases where the drainage is good liquid manure may with advantage be administered now, as so long as it does not render the ground sour and sodden, it will in the end have a beneficial effect on the roots. These the mulching encourages and attracts by the shade it affords and the uniformity of moisture it maintains in the soil, as by its use evaporation is intercepted and the fierce rays of the sun kept at bay.

D.

APPLES FOR SMALL GARDENS.

APPLE trees will grow and fruit in nearly all kinds of soils, provided they are properly drained. They dislike stagnant water and damp clayey soil, which induces canker, owing to the wood being imperfectly ripened in the autumn. The soil most suitable for their growth is a strong sandy or gravelly loam. If heavy clay, it must be well mixed with plenty of light soil and lime rubbish or old mortar to keep it open, so that the roots may be able to grow freely. The pits or holes for the trees must be made wide if the ground is stiff and moderately deep, bottoming with some hard material to keep the roots from growing into the cold subsoil. Planting upon raised mounds keeps the roots near the surface, and gives them the benefit of sun heat, which ripens the wood and favours the formation of strong, plump fruit buds. Care must be taken not to plant too deeply upon any soil, for if that be the case, the trees are sure to canker. Pyramids suit small gardens best, as they occupy but little ground, and if carefully planted and properly trained, last in good condition for years. By pruning them moderately hard back they will form plenty of fruit buds, and all branches that cross or are otherwise ill-placed should be cut out. If dwarf trees are required, they should be worked upon the Paradise stock. They may be planted on the borders of the kitchen garden—say 4 ft. from the walk and 6 ft. from tree to tree—or they may be planted in quarters, in rows from 4 ft. to 5 ft. asunder and 6 ft. from row to row, between which vegetables may be grown. Dwarf bush trees are suitable for borders in single rows, or they may form plantations like those of Gooseberries and Currants. The trees, which may be worked on the Paradise or Doucin stock, may be planted 4 ft. asunder and 6 ft. between the rows, the ground as before being cropped with vegetables both in summer and winter. The young shoots must be kept thin and regular in order to admit plenty of air and light, so that the wood may become well ripened

before the trees shed their leaves. The young shoots will require to be pinched some time in June, and regulated a little in winter, cutting out any branches which have grown too strongly after the summer pinching. When pruning, care must be taken to leave the shoots a moderate length, for if pinched too hard, the wood often cankers, and the fruit becomes small and inferior in quality.

Espaliers are generally used to separate the borders of the kitchen garden from the quarters used for cropping. Espalier trees are best worked on the Crab, and if healthy and properly trained they are both useful and ornamental, and the fruit is not liable to be shaken off by rough winds. Procure young trees from the nursery with three or four branches growing horizontally on each side of the main stem, which should have a strong shoot as a leader; the side branches should be laid in 12 in. apart, and the centre one should be led upwards, cutting it back to four eyes annually to furnish side branches until the tree has grown to its required height, which should be 5 ft. or 6 ft. The side branches will require to be pruned moderately short if the tree is weakly, in order to induce it to form strong, healthy wood, but if strong the shoots may be left longer. Plant 18 in. from the edge of the walk, but sometimes 6 ft. is left between the walk and the trees. This is frequently used as a flower border, or dwarf vegetables may be grown on it. The trees should be planted 15 ft. apart. For trellises, some use wooden stakes driven firmly into the ground, tying thin rods of wood upon the stakes 12 in. apart to train the branches to. But the best trellis is iron posts or neat wooden ones with strong galvanised wire strained tightly in connection with them. Sometimes continuous iron bar hurdles are used, and these make capital trellises.

Standard trees are best worked upon strong-growing Crab stocks. They may be planted in the borders of the kitchen garden, 9 ft. from the edge of the walk and 18 ft. apart. Their branches must be thinned out every winter, shortening back the strongest growing shoots, so as to admit plenty of air and light to ripen the wood early in the autumn, an essential point in fruit cultivation. Apples are seldom grown in England upon walls, but in some parts of Scotland they are grown extensively in that way, the usual modes of training them being either the horizontal or fan plan. Trees thus grown require the same treatment as espaliers, both in regard to summer pinching and pruning in winter.

The best time to plant is October and November, when, if all goes well, the trees will be well established before they commence to grow in spring; they may, however, be planted with success until they are nearly bursting into leaf, but one must not expect the same strong, vigorous growth as there will be upon trees planted in November. If the weather in summer be very dry they will require to be watered at the roots occasionally, for they will not be properly established the first summer. If established trees grow too vigorously, making at any time long soft shoots, which do not ripen, there will be no chance of a crop. In such a case they should be root-pruned, which will induce the formation of short-jointed, firm wood and plenty of fruit buds. Cut a trench round the tree 3 ft. from the stem, or sometimes it is advisable to cut the trench only half way round the tree the first year and finish it the second year, digging down as far as roots are formed; out also underneath the base of the tree with a sharp spade as far as possible, in order to cut the roots that are running into the subsoil. If at hand when filling in the trench mix a portion of lime rubbish with the soil; into this the tree roots freely, and it causes it to make fibry roots. Jagged roots must be trimmed with a knife, or they may canker and decay. I have always found root-pruning effective in bringing trees into a bearing state, both of Apples or Pears.

VARIETIES.—Of kitchen Apples I would grow: Joanneting, Keswick Codlin, Kentish Codlin, Cellini, Beauty of Kent, Norfolk Beefin, Winter

Greening, Hawthornden, Blenheim Pippin, London Pippin, Stirling Castle, Tower of Glamis, Waltham Abbey Seedling, Royal Russet, Galloway Pippin, Oslin, Melrose, and Duke of Wellington. Of Dessert Apples: Golden Winter Pearmain, Irish Peach, White Cockle Pippin, Ribston Pippin, Cox's Orange Pippin, Margil, Yellow Ingestre, Golden Pippin, Sturmer Pippin, Golden Reinette, Gravenstein, Barton's Incomparable, Quarrenden, King of the Pippins, Lemon Pippin, Scarlet Nonpareil, Warner's King, and Golden Noble.

WM. CHRISTISON.

ROOT FORMATION.

In answer to Mr. Robb (p. 63). I may say that in the case of Vines I have found the better the growth the greater the root action; the richer the soil, the less will the roots have to divide in order to seek and supply nourishment. If the Vine be healthy and vigorous it requires more food than it would if in bad condition; therefore what one rootlet was able to supply at one time is now insufficient, and division is the course the roots adopt to keep up the supply. But apart from this, certain conditions of soil have a tendency to promote root division, such as gritty obstacles or strong fibrous loam. I have seen Vine roots protrude several inches from the stem in an undivided manner through various media till they came in contact with a piece of fibry turf, when they would form quite a bunch of fibres. This seems to indicate power of selection, which is refuted by some who state that "roots will almost always grow most readily in that direction which offers least obstacle and gives most encouragement." Roots in ordinary tenacious non-fibrous soil are usually thick and fleshy, which may be owing to the continued moist state of the soil through insufficient drainage, &c., and more especially if a sufficient supply of food be within reach; but if that same soil be well drained and be made hard and firm here, and loose and light there, in all probability the roots will become fibrous. A plant growing in poor soil to make an equal amount of wood as one growing in rich soil, would have to make up the deficiency by more energetic root action; if in the rich soil there were food in 1 sq. in. of mould to make say 6 in. of wood, and in the poor soil the same amount of food was spread through twice the quantity of mould, then it is evident that in order to collect the same quantity the roots in the poor soil would have to travel twice as much as those in the rich to make up the same amount of growth, and would require increased root action to accomplish it. Thus it would appear that rich soil alone is not conducive to abundant root action.

THOS. K. HOLDEN.

— With regard to root formation let us go to the border to which I referred, and give its history for nine years. It was 40 ft. long, 17 ft. wide, and 2 ft. deep, 11 ft. being outside and 6 ft. inside. It was made up as follows: 1 truck-load shoddy, 1 ton $\frac{1}{2}$ -in. bones, 1 ton large bones, and 12 cart-loads cow manure; the rest consisted of loam and leaf-mould. This material was turned over once and filled into the border. That was done between November and January. In February the Vines were planted out of 10-in. pots without the balls being disturbed. I was told the then gardener had two barrow-loads of fresh manure put round each Vine. Now, why did the Vines in the compost just named not make roots. Five years afterwards I took charge of the viney in question. My employer said he never had a ripe Grape. "Sour, always sour," were his words. I attributed the cause to the border. "Oh no," was the reply, "it's the management; that border cost me over £30." "F." prefers a wall of turves; well, so do I, and I had one. The outside border was covered with Grass, my employer wishing it to be so; therefore, what was I to do. I could not touch the border. Fortunately for the well-being of the Vines my employer went abroad for 6 months. I thought I would risk an investigation of the border. I started inside first, had all the sodden mass cleaned out right up to the Vines, with the re-

sult as stated in THE GARDEN (p. 18). I then built a wall of turves 3 ft. from the Vines, and filled in with rich soil, but not incorporated with manure, only a few bones and charcoal, leaving 3 ft. to be added to as required. I then ventured to re-plant the border did I cut the opening and imagine it was done in the centre, which would be $\frac{1}{3}$ ft. from the side of the house. Well, I cut down 1 ft. from the side of the house, and we cut no roots of any value as regards sustaining a crop. I should have done outside as I had done inside, only servants cannot be masters. I had six bunches on each rod that same year, and although the bunches were not large I got them to ripen and be of good flavour. My employer was very pleased with his Grapes, and wanted to know how I got them to ripen, as he had not been able to get them ripe before. I told him what I had done, and promised if he would let me take out the outside border they would soon improve. He gave permission; we took it out, and it was in doing so I saw the roots in the gravel which we did not disturb. The Vines have done well ever since. The question under discussion is, Will the Vine make most roots in rich soil or most in a poor one? I say most in a poor one, although I am not going to advocate planting in poor soil.

THRUMPTON.

WATERING PINE-APPLE PLANTS.

In no February have our Pine-apple plants been in such good condition as this. With our deficiently heated structures, the weather hitherto has, no doubt, been all in their favour, but in my opinion the watering of Pine plants has more to do with their condition than all else. The great tendency is to give them too much. The slightest inclination to stagnation at the root or an over dampness of the soil will soon make the leaves assume a golden tinge, and growth will become gradually slower until little progress is made. Under constant over-watering the leaves are generally narrow, too, and the fruits small; in fact, over-watering wholly cripples their development. I always water the Pines myself; many of them have not had a drop since September last, and they do not show much need of it now. During that time they have been plunged in ordinary moist leaves, the bottom heat being about 60°. They have just been replunged. The pots were full of roots and the leaves broad and thick and covered with bloom always a sure indication of good health. Of course, watering should always be regulated by the temperature, but keeping on the dry side even in great heat will always be found most conducive to good health. When watering is done, a thorough soaking should be given; but to watering once or twice a week I strongly object. When plants are newly potted we are all apt to give more water than is good for them. If no water is given until fresh, dusty-white leaves are seen coming up from the centre, much of the danger of doing harm by over-watering or early watering is over, as the roots will then be at work and careful watering afterwards will keep them at it. Cold water or strong liquid manure should never be given, but if of about the same heat as the bed and moderately enriched, no harm can be done. Plants in fruit generally require more water than younger ones.

J. MUIR.

Late Apples.—It is a strange thing that in our markets one cannot at present get a good Apple without great difficulty. The Blenheims are gone, and Newwinds cannot be bought good this year. What am I to do? Do no growers secure late-keeping Apples which one could roast or bake at this time of the year? I have heard a good deal of the wonderful progress of horticulture, but I begin to fear that very little has been done in Apple growing or Apple raising to meet our wants.—W. J.

Peach trees shedding their buds.—"C. W."s Peach house (p. 73) is not, I believe, sufficiently ventilated; the thermometer should

not rise above 70° with sun heat at this season. Peaches and Nectarines suffer more than any other fruit trees under glass by being overheated. This winter being so mild, they should have had more air given them. Bud-shedding is also frequently caused by dryness at the root, and sometimes by over-cropping. If the tree in question had not sufficient moisture at the roots last summer, that would cause bud-shedding.—SAMUEL BRIEN, *Giltoun, Newbridge.*

Diseased Vine roots.—From the description given by "H. D. E." of his Vine roots, there can, I think, be no doubt that his inner border has been dry, a circumstance which has caused the fungus to generate and to fasten itself on the roots. The best thing to be done is to remove the whole of that portion of the soil as carefully as can be done, so as not to injure any of the fibres that are worth saving, and having laid the roots bare, they should be scrubbed with a soft brush and strong lime-water, to remove the mycelium; then they should be laid aside, covered, and kept moist till a new border is made. This should be done with fresh yellow loam from a closely fed pasture; it should be simply chopped up somewhat roughly and used just as it is, without any admixture whatever, except a few crushed bones, if they can be had. To use manure of any kind, or leaf-soil, is sure to do harm. Vine borders that would last sweet and wholesome for years and become full of fine, healthy roots, are often spoiled by its presence. What stimulants are required may always be given in a liquid form when the Vines are full of leaf and in active growth. Before filling in with the new soil, I would advise "H. D. E." to closely examine the collars of the plants to see if any fungus is lurking there, for if so, it must all be removed, as the least particle left will spread again and run through the whole of the border. During summer frequent soakings of weak sewage should be given, and at no time ought the inner border be allowed to get dry.—S. D.

— I would say that the Vine border is in a bad state as to drainage. Mildew, bad colouring, and shanking are caused by bad soil, into which the roots have found their way. The border, in short, requires to be remade, clearing all the old bad material away, and replacing it with a mixture of good loam and well decomposed cow manure, $\frac{1}{2}$ -in. bones, and lime rubbish. From 2 ft. to 3 ft. of good soil is absolutely necessary for Vines to do well in, and the bottom of the border should be well drained, and concreted, if possible. Cutting the roots off the inside border would be of no benefit to the Vines. When a new border is made I would recommend young canes also to be planted, and for such work there is no better time than the present.—SAMUEL BRIEN, *Giltoun, Newbridge.*

Planting an orchard.—Some few years ago I planted about an acre with standard Apples, Peaches, and Plums. They have done well, but since planting out these standards I have planted about fifty or sixty trees on wire espaliers, and if ever I were planting an orchard again I would put it all on wire, for these reasons: I could put more trees on the same space, the fruit on the espalier is finer, and it is quite safe from the wind, which often completely strips the standards of the fruit when only half ripe. The only drawback to the espalier is the first expense, but this need not be great. Old rails removed from railway sleepers make capital end standards or straining posts, and the intermediate posts have only to sustain the weight of light wires; there is nothing of the nature of a fence to resist cattle. They may be made of perforated $\frac{1}{2}$ -in. iron bars, merely driven a couple of feet into the ground, as after a year or two, when the trees have clothed the wires, the trees themselves will support the wires. This is what I would recommend. Buy an old rail, say 16 ft. long, at the price of old iron; cut it into two lengths of 10 ft. and 6 ft.; get the smith to bore a dozen holes in the 10-ft. length for the wires; sink it in the ground 3 ft., leaving 7 ft. above ground, and use the 6-ft. length as a stay. There are no stones or anchors necessary for the

10-ft. standard—it has only to resist the wind; but one of the wire holes should be made about 1 in. in diameter, and through this hole an iron bolt is driven for the head of the stay to rest on. For the foot of the stay a stone or slate may be laid flat about 1 ft. below the surface, and another stone at right angles for the point of the stay to press against like a half-open book. Wire is sold by weight, and very light wire would do. I have not tried it, but I think common copper bell wire would be as economical as any. The espaliers should run north and south for the sun, and if 7 ft. high, about 8 ft. apart to admit the sun and air. There is ample room for a row of Gooseberries or Currants between each espalier. If a man objects to the sight of an old rail, it is easy to plant a climbing Rose to hide it. In planting an orchard see that you get young vigorous trees, not old stumps that have been cut back for years, and also open roots, not stunted and clumped or pot-grown; also get trees from a colder county—the extra warmth and better climate of the place where they are to be planted will start them freely into growth. A single espalier should run east and west, but rows of espaliers should run north and south.—J. D. B.

Grapes in bottles.—The system of keeping Grapes over the winter, with a piece of wood attached to the bunch and its end in a bottle of water, is too generally practised to require further description. The preparation of the fruit, by early and thoroughly ripening it, has, in my opinion, more to do with successful keeping than anything else. Some prefer leaving a piece of wood 1 in. or 2 in. long beyond the bunch; this we never do, but have always cut pretty close to the bunch, and often rub the cut with styptic, so that evaporation cannot take place. This year we treated all our shoots in this way. Last year the berries were plump and in good eatable condition to June 1. We have tried to keep them in all sorts of structures, both in light and in darkness, but never found much difference under either condition. In a fruit room, where all the shelves were filled with Apples and Pears for a considerable part of the season, Lady Downes always kept admirably. This was over a stable where the temperature was very even, and no fire-heat ever employed. Probably the best position we ever employed for such a purpose was a cupboard in a dwelling-house, kept close; there Alicantes were always extra good till May. Last year we bottled a number of bunches with the wood left beyond the bunch, that between the bunch and the Vine being cut closely off, and no perceptible difference was the result. The kinds were Gros Colmar and Barbarossa, but they were used before the end of February, and were not tested like the others. We have proved again and again that when the roots are in a sweet healthy soil, not soured by heavy applications of manure, the keeping has been of the highest order. Ripening is supposed by some to be complete when colouring is finished, but heat and air are wanted long afterwards.—M. T.

SHORT NOTES—FRUIT.

Weight of Bergamot Orange.—The other day I gathered from a tree here a fruit of this Orange which weighed 1 lb. 2 oz. I would be glad to know if it is heavier or lighter than others of the same kind grown elsewhere.—J. MUIR, Margam.

Influence of scion on stock.—A strongly marked case of the influence of the scion on the stock has occurred in an early vineyard here. In this house are two Vines of Muscat of Alexandria side by side, on one of which I last year grafted a Buckland sweetwater. This Vine broke at least a fortnight earlier than the other this year.—JOHN C. TALLACK, *Prideaux Place*.

Root pruning (p. 114).—Mr J. E. Waiting is evidently a firm believer in the benefits arising from root pruning, but I question if the most ardent disciple of that practice will thank him for saying that his trees thus treated are a month earlier than those not so treated. At present bloom buds are abundant on all kinds of trees, whether recently lifted or not; but in our case those lifted are a month later rather than a month earlier than those not moved.—J. G. L.

TREES AND SHRUBS.

WINTER'S BARK. (DRIMYS WINTERI.)

THE chief value of this interesting plant, as far as garden ornamentation is concerned, is its fine evergreen character. The flowers, however,



Winter's Bark (*Drimys Winteri*).

though of a greenish yellow colour, meet with admirers, and a well-grown plant in bloom is by no means unattractive. It grows freely and without difficulty, but requires a little management in the training, or rather cutting back of its long branches. The leaves are pale green above and glaucous beneath, and their form, as well as that of the inflorescence, is clearly shown in the accompanying illustration. It is properly a greenhouse plant, but will survive moderately severe winters against a wall. For greenhouse culture a sandy loam is best, and small pots in proportion to the size of the plant. The best results will be obtained in this way, though it will grow under various forms of treatment. This plant furnishes the bark known as Winter's Bark, which was at one time considered to be valuable, but now it is rarely used. It is a stimulating aromatic tonic, and was first brought to Europe by Captain Winter in 1579, he having accompanied Sir Francis Drake to Magellan Straits, where the tree is a native. It is widely spread in Antarctic America. There are several species, but the only other claiming to be fairly well known in cultivation is *Drimys aromatica*, a more erect tree than *Winteri*, redder in appearance, and not so handsome. Another name is *Tasmania aromatica*. This species and two others, both Australian, are sometimes separated from *Drimys*, owing to their having dioecious flowers, the female having one carpel. *D. aromatica* is called the Pepper Plant by the Tasmanian colonists, and they use its fruits as a substitute for that condiment. The bark closely resembles Winter's Bark, and is used for it by colonial doctors. This plant flourishes under the same treatment as *D. Winteri*. *Illicium anisatum* is one of the most noteworthy of its immediate allies. It is a Chinese shrub, the fruit of which, called Star Aniseed, is a powerful stimulant. One of the most attractive of this tribe of plants is *Illicium floridanum*. The flowers are red and resemble nothing so much as little Sea Anemones. In the garden of the

Royal Botanic Society in Regent's Park there used to be some fine specimens of this shrub.

R. I. L.

Coniferae at Fonthill Abbey, Wilts.—

The following are the measurements of some of the Conifers growing on this estate:—

Names.	Height. ft. in.	Circumference 5 ft. from ground. ft. in.	Spread of branches. ft. in.
<i>Thuja gigantea</i>	51 6	4 2	20 0
" "	55 7	4 11	18 6
" "	53 5	4 3	19 3
<i>Cupressus macrocarpa</i>	48 10	4 3	
<i>Pinus excelsa</i>	34 7	3 5	
<i>Abies Menziesi</i>	49 1	3 9	27 0
" <i>Albertiana</i>	44 0	2 1	19 0
" <i>Morinda</i>	25 6	1 10	16 8
" <i>Douglasii taxifolia</i>	66 4	5 2	32 0
<i>Picea lasiocarpa</i>	39 4	2 10	16 4
" <i>bracteata</i>	34 0	2 3	20 0
<i>Taxodium sempervirens</i>	44 8	5 5	19 0
<i>Cryptomeria japonica</i>	50 5	4 5	23 5
<i>Picea nobilis</i>	34 8	1 11	14 0
<i>Cupressus Lawsoniana</i>	49 0	2 31	15 7
<i>Wellingtonia gigantea</i>	59 7	8 13	19 6
" "	54 0	7 54	18 4

Many of them were measured last year; some of them have made a growth of from 2 ft. to 3 ft. —J. R. WEST, Forester.

EUONYMUSES AS TOWN BUSHES.

THESE are about the best shrubs anyone can plant in towns, as they withstand all kinds of adverse conditions better than any other kind of evergreen. They are extremely hardy, being seldom or never injured by severe weather. Smoke has no influence on them, and under bushes and trees or in the shade of houses and dark corners they are as healthy as in the most favourable positions, facts which deserve to be made widely known, as there is a constant demand for bushes for situations of the kind. Half of those planted fail to grow, and the greater part of the other half are never attractive. In some of the smoke-laden atmospheres and towns in Wales I have lately seen many *Euonymuses* growing in the greatest luxuriance, and not only forming handsome individual bushes, but actually making great hedges.



Tasmanian Pepper plant (*Drimys aromatica*).

and effectually shutting out objectionable views from roads and other houses. There are a good many forms of *Euonymus*, including green and golden, green and silver, and dark green. They are all most pleasing in appearance, and all appear to be alike hardy. Where other shrubs have failed in the positions indicated, let me ask those in-

terested to give *Eunonymuses* a trial. They are easily raised from cuttings, and they may now be bought cheaply in nurseries. CAMBRIAN.

Ochna multiflora.—From the description (p. 137) of the above-named shrub, I think it must be the same plant as what is figured on plate 4519 of vol. lxxvi. of the *Botanical Magazine*, under the apparently singularly inappropriate name of *Ochna atropurpurea*, given to it, according to the accompanying letterpress, from the lurid purple-brown colour assumed by the calixes when dried. It is said to be a native of South Africa east of the Cape, extending as far as Delagoa Bay, and was introduced to the Royal Gardens close on fifty years ago, in 1833, and was treated as a greenhouse plant up to 1850, during which time it never bloomed; but being then moved into the warm Palm house, it showed that it only required the warm temperature to make it bloom profusely. I find that *O. multiflora* is also figured on plate 13 of vol. xvii. of "Annales du Muséum de l'histoire Naturelle," published at Paris between 1802 and 1817.—W. E. G.

Akebia quinata hardy.—"W. G.'s" note (p. 129) in reference to this plant induces me to give the following account of a very fine specimen of it which exists in a private garden near Dorking: It was planted about eight years ago on the front of the house facing due south, and now covers many square feet of wall. It has never had any protection in winter and no attention beyond that of clipping it into form now and then with ordinary clipping shears. When I saw it for the first time last spring the growth was most abundant and luxuriant, and the extremely beautiful racemes of flowers were produced in great profusion. The woodcut (p. 129) hardly does justice to the pretty foliage of this plant, the five lobes of the leaves being generally very regular. The flowers are faithfully represented; the seed-bearing blossoms are like artificial flowers in wax, reminding one of those of the *Hoya* family. Where it proves hardy it is a most desirable plant, graceful in habit, and easy as regards cultivation. The plant I speak of is growing in ordinary garden mould, which is generally mulched with well rotted manure once a year in spring or autumn. It has never lost its foliage all the winter, and has already commenced to make strong growth, some of the shoots being 3 in. in length; this is no doubt in consequence of the unusually mild weather which we have experienced since the new year commenced.—C. D.

Flowering Dogwood and Magnolia.—I can quite corroborate the remarks by "W. G." in THE GARDEN of Feb. 18, relative to the value of the flowering Dogwood. I was in Philadelphia in the spring of 1876, and was much struck by the beauty of the flowers of this tree, which was very common in Fairmount Park; some of the trees were a mass of bloom, and were most effective. A species of deciduous *Magnolia* was also much grown, and when in flower formed the most striking and beautiful objects. One I remember particularly well, 30 ft. or more in height, growing in the Laurel Hill Cemetery, was a mass of rich creamy white blossoms, and was one of the most lovely things I have ever seen. To describe its beauty is impossible. I can only say that that tree, the Niagara Falls, and a certain sunset effect on a river with floating masses of dazzlingly white snow covered in on it when the water seemed the colour of the brilliantly red sky which was reflected in it, were the most beautiful, and have left more vivid impressions on my mind than anything else I saw in the States. I am surprised that this *Magnolia* is not more cultivated in this country. I suppose it would stand our climate, which is much more equable than that of Philadelphia.—G. S. S.

Griselinia littoralis.—I cannot find this in London. What is its history? It forms a compact bush of moderately quick growth, the leaves are of a light green colour, and it seems to be perfectly hardy, as it passed through last winter without injury. How is it propagated?—JOHN C. TALLACK.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

A LARGE porcelain bowl 13 in. across, filled with yellow single Tulips, is a fine ornament for the dinner table. The Tulips may be either turned out of pots or cut and put in water. In the latter case it may be convenient to have a disc of zinc perforated with holes to receive the stalks of such a diameter as will fit the bowl at about the water level; this is covered with some carefully-picked fresh Moss. Sheaf-shaped bouquets of the same yellow Tulips, in four pieces of the same china of rather upright form, complete the decoration of the table. This arrangement also does well with white and yellow Tulips, using the two colours together—not mixed up, but grouped in masses—and a rosy-pink kind called Rosine, rather double, is to be recommended either alone or grouped with white. A good bunch of red-purple Christmas Roses and a few white, with the handsomely veined leaves of the Italian Arum, fill a glass bowl; the red Hellebores have leafy collars that are a pretty variety from the more naked stalks of the white. Cut Hyacinths, pale blue-grey and white, are arranged with the Olive-like foliage of evergreen Oak, and a smaller table bouquet is made of a few flowers of a pale salmon-pink winter-flowering Carnation with Lavender twigs and some taller sprays of Rosemary—a pleasant concord both of colour and scent. A large oval embossed copper holds two pots of green-leaved *Aspidistra* with an undergrowth of Lily of the Valley placed as thickly as the pots will stand together; the whole is carpeted with fresh Moss.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

On a recent occasion, in order to provide an arrangement as a centrepiece for a dinner table of considerable size, I selected a shapely, handsome plant of *Geonoma gracilis*, furnished with about seven leaves, the plant itself being nearly 3 ft. high, including the pot. This Palm, having been grown in a 4½-in. sized pot, was well adapted for my purpose. I turned it out of the pot on to the centre of an oval meat dish measuring 2 ft. 3 in. in length. I made the plant secure in its position with sand, filling up to the edges of the dish. After this we plunged six or seven small plants of *Asplenium Veitchi* that had been grown in 2½-in. pots around the base of the *Geonoma*. At the two ends we used two very small plants of *Pandanus Veitchi*, nicely variegated and well developed; also four small growths of *Pandanus graminifolius* at the sides. As a base to rest on the cloth we secured small leaves of variegated *Begonias* and of *Alcacia metallica*, and a few fronds of *Nephrodium molle*. In order to hide the sand we covered the surface with fresh green Moss. Having some spikes of *Eucharis amazonica* with the last flowers just expanded, we used four with five flowers in all, and stems from 1 ft. to 15 in. in length, placing them around the centre plant, not too closely. To harmonise with these we had several stems with fresh foliage of *Cyperus alternifolius*, and some spikes of *Narcissus* (Paper-white and Early Roman), and growths of the same cut off close to the soil. Around these we dotted some growths and good spikes of Lily of the Valley. A few spikes of Chinese Primula, chiefly white, completed the arrangement, which, when on the table, which was lighted with candles, had a very pleasing effect. Had the room been lighted with gas it would not have looked nearly so well; the foliage of the *Geonoma* would then have cast a shade on the surroundings. Two small plants of *Crocus Weddelliana* were placed in two soup plates, and secured there with sand and green Moss, amongst which were dotted a few Tulip blooms and a base of large growing forms of *Adiantums*, with a few fronds of the Maiden-hair among the Tulips. Blossoms of *Camellias* in various colours were used in specimen glasses. No costly perennes or valuable glass were used, yet the entire arrange-

ment gave every satisfaction. Those of us who have much bouquet work to do ought to grow *Staphylea colchica*, for which purpose it appears to be a valuable plant. Choice cut Roses should be made the most of; individual flowers look well in specimen glasses, but should neither be set in a draughty place, nor where there is too much heat; in either case they will soon fade.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Bocconia cordata.—This hardy perennial in deep sandy loam grows to a height of 8 ft. The foliage is large and deeply serrated, and the flowers, which are produced in panicles on the upper portions of the stems, are of a whitish brown colour, and under favourable conditions as to shelter from wind continue in a flowering state from July to the end of September, a fact that justifies its being placed amongst the very best of the taller growing section of hardy flowering plants. It is well adapted for planting in large masses in the back lines of herbaceous borders, but undoubtedly seems more at home on turf, something after the way in which the Pampas Grass is generally planted, i.e., in separate tufts in front of shrubberies to break or relieve the oftentimes unavoidable formality of straight lines. For the "wild garden" it is every way suited, for the less the roots are disturbed, the better the plant grows. It is increased by division, which requires to be done with great care, the best time being just as the plant is starting into growth.

Violas and other bedding plants.—Where spring bedding is not practised and the beds vacant, several kinds of hardy flowers may now be planted, each bed, as regards manure and digging or trenching, being given such treatment as the intended occupants demand to produce the best results. Violas, Pansies, Calceolarias, and Verbenas never thrive satisfactorily without abundance of manure and deep digging, but, given these, failure is all but impossible; on the other hand, it should be remembered that it is possible to have too much of a good thing; for instance, in rich soil many kinds of *Pelargoniums*, though they will grow like weeds, refuse to flower, and the same may be said of *Ageratums*, *Heliotropes*, *Lantanas*, and many others. Still, it will not be safe to follow this line of treatment too severely; there are always exceptions to rules; for example, fine foliaged *Pelargoniums* must have as liberal treatment as Violas and Calceolarias if they are to grow and colour to perfection. But to return to Violas; plant them out as early as possible in the richest soil, and no other spring or summer flower will be able to match them for free and continuous blooming, and few kinds equal them either for massing or edgings. The best all-the-year-round varieties are Bluebell, Tory (blue), Crown Jewel (blue), Princess Teck (light mauve), Snowflake (white), and Lutea (yellow). On the terrace at Hampton Court Palace last summer the blue varieties were used more effectively than I ever before saw them as a carpet or setting for the tall variegated *Abutilons* Thompsoni and Darwini. Several large oblong beds were so planted, and though there were most elaborate carpet beds, grand beds of *Pelargoniums*, *Verbenas*, &c., none were half so beautiful as these, and it should be added that the simplicity of the arrangement in no small measure enhanced the general effect. Had the beds in question been planted with an outer marginal edging of golden variegated *Arabis*, the arrangement would have been as near perfection as it is possible for any bedding arrangement to be. Once arrangements are completed, there are sundry other kinds of hardy bedders that should be planted at this early period, not only because the plants will be likely to do better, but also because much precious time will be saved when the busy season arrives. Among these are the variegated *Arabis*, *Ajugas*, *Cerastiums*, *Golden Feather*, variegated *Thymes*, variegated *Lamiums*, *Lavender* Cottons, *Veronica incana*, and *Eunonymus radicans*. This last makes a striking and permanent edging

and is especially well suited for edgings to beds of Cannas and Ricinus, or indeed for any fine foliated plants.

Annals and biennials.—It is now time to sow many of these, and especially those intended to be used in the general bedding arrangements. The endless varieties of good kinds of *Pelargonium* have pushed to the rear many good old annuals that twenty years ago did excellent duty on the parterre, foremost amongst which may be named *Sanvitalia procumbens*, compact and dwarf, with light yellow flowers having a black disc; *Saponaria calabrica*, similar in habit of growth, but slightly taller; *Brachycome ibridifolia*, same habit as the last, but having bright blue flowers; *Portulacas* of several colours, but all of low dense growth, and alike suitable either for outer lines of beds or for massing in small beds; *Silene pendula compacta*, not unlike the *Saponaria* just named, but, owing to the habit of the plant being tufty, the effect produced by the two plants is very different; *Tagetes signata pumila*, bright yellow—in poor soil it is dwarf and keeps in flower for months. These are a few only of the many kinds of annuals that may be relied on for summer bedding, and which, if used in fair proportion to other kinds, will tend to obviate the charge of sameness often made against bedding arrangements. They should be sown now on a south aspect in the open garden. If lights can be placed over them till fairly well out of the ground, all the better; but after this the more they are exposed, the more robust will be their growth. If sown thinly, no transplanting will be needed till they can be placed in permanent positions. *Asters*, *Stocks*, *Zinnias*, *Phloxes*, *Indian Pinks*, and *Everlastings* should also now be sown in frames; and *Wallflowers*, *Antirrhinums*, *Sweet Williams*, *Larkspurs*, &c., in the open air. To guard against loss through slugs and birds whilst the plants are in the seedling state, when possible all the kinds should have the protection of frames or hand-lights; lacking such structures, sow the seeds on a plot of ground by themselves, and as soon as sown sprinkle the ground thickly with wood ashes and soot, the best preventive against injury from slugs; and against injury from birds, net over the entire plot.

ROSE GARDEN.

W. H. FRETTINGHAM, BEESTON.

THOSE who have not had their Rose beds dug and well dressed with manure should now lose no time in doing so. All Hybrid Perpetuals may now be pruned, leaving the Teas till later in the season. Here we never saw Roses in the open air so farward before. Indeed, plants which have not been disturbed have been full of life and activity all winter, many varieties remaining evergreen. Under these circumstances they will, when pruned, bleed freely and lose much of what we would rather was retained, but the longer the delay in pruning the greater the evil. Should no break in the present mild weather occur, we shall have an early flowering season.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Bulbous plants, such as *Hyacinths*, *Tulips*, and *Narcissi*, as well as hardy shrubs used for flowering in pots, do not require much forcing after this time, as they naturally come into bloom under glass without much fire heat; and where there is any deficiency of the ordinary spring-flowering greenhouse stock to keep up the requisite supply of bloom to follow the forced plants, a portion of bulbs and other hardy subjects may with advantage be kept back by giving them no more warmth than that afforded by greenhouse treatment. The indifferent usage which forced bulbs frequently receive after flowering—makes them of little use subsequently; whereas if fairly cared for, *Tulips*, *Narcissi*, *Crocuses*, and even *Hyacinths* answer well for outdoor cultivation. With their foliage soft and tender, consequent on the forcing to which they have been subjected, they are often at once put out in the open air; whereas

if turned out into a bed of prepared good soil in a frame and well attended to until their growth stands a chance of getting matured, they will do good service in after years planted where they are to remain.

Hardy shrubs.—These also are often badly used when they have done blooming under glass. *Lilacs* and *Laurustinus*, especially such of these as have been prepared for pot culture along with double *Prunus*, *Ghent* and the mollis varieties of *Azalea*, and *Rhododendrons*, should have a place in a pit or any spare structure where their growth can be fairly matured before being exposed to the open air. *Deutzia gracilis* should, if room can be found, be kept in warmth, such as that afforded by a vinery at work, until the wood is hard and the next year's flower-buds visible.

Camellias.—As these go out of flower they should, if affected with white or brown scale, at once be cleared from it, as it will increase apace under the warmer treatment to which the plants ought to be subjected whilst making their growth. I have found nothing better to assist them during the time when growth is being made than soot water, which not only has an invigorating effect and improves the size and colour of the leaves, but also banishes worms from the soil, should these be present. A little shade will now be beneficial to those that are making growth, and also to those that are in bloom, as the flowers will not last long if subjected to bright sunshine. In the case of examples that are turned out in beds as well as in pots or tubs, be careful that the whole of the soil is sufficiently moist, for *Camellias* more than most plants cannot endure drought at the root, particularly whilst their flowers are opening and their growth is being made.

Azaleas.—Such of these as have been forced to come in during the winter and have done blooming should immediately they are out of flower have the seed-pods picked off, as the production of seed exhausts the plants even more than the flowers. If they are at once placed in a little heat, and kept growing until their bloom-buds are fully formed, the time of their flowering next season can be accelerated. The course here advised is different from that of keeping the plants after flowering for a time in an ordinary, dry, cool greenhouse temperature, and then placing them out-of-doors early in the summer with the season's shoots only partially matured. So managed they will bloom in a certain way, but the fact of *Azaleas* flowering at all under such treatment only shows their accommodating nature; the growth and bloom so produced are extremely meagre and poor compared with that which is attainable under more liberal management. In all cases care should be taken that the plants before being started into growth are quite free from their worst enemy, thrips. Tobacco water is the safest and best remedy out of the many I have tried for the destruction of these pests and their eggs. It is much better not to shift any plants that require potting until the young shoots have made some progress, as the roots of *Azaleas* do not begin to move nearly so early as the top growth. Plants required for late blooming, to come in say at the end of May and the following month, should now be moved to a north house, and kept as cool as possible without subjecting them to absolute frost.

Roses, such as are grown in conservatories, or in any structure along with other plants, require especial care at this season to see that they are free from aphides. Where planted out, if the soil needs manual assistance, this should at once be given, as on this mainly depends the successional crop of bloom. Where Hybrid Perpetuals are used in quantity for forcing they should now be introduced to the Rose house in succession; these will give flowers at a time when the Tea varieties that have been earliest at work are beginning to fall off more or less, but even in the case of the latter it is surprising how they will keep yielding a succession of bloom if they are regularly supplied with manure water from the time when they are first started; without

this the after growth comes too weak to bloom strongly.

Lilies.—Any of these that have been wintered in cellars and under plant stages should, immediately the shoots appear above the soil, be placed in a light position, or they will become drawn and weak, a condition that no after treatment can rectify. See that the soil is sufficiently moist, but not too much so. The different varieties of *L. speciosum*, *L. auratum*, and a few others as soon as they begin to grow do well in a cold pit where they can be kept near the glass. In this way they make strong, sturdy growth, calculated to flower well. *L. eximium*, than which there is no more useful species, coming in as it does before the other kinds, should be grown by all who have a greenhouse. From this time forward it will bear a little warmth if its early flowering is desired. It is most serviceable when two or three good strong bulbs are grown together in a 7-in. or 8-in. pot.

FRUIT.

W. COLEMAN, EASTON CASTLE.

Pines.—By this time the most forward *Queens* will have reached the flowering stage, and if well ripened plants were selected the remainder of the first batch will be showing their fruit. So far mild weather has favoured the maintenance of steady temperatures, and we may now hope that brighter days will enable us to strengthen the plants and economise fire heat by running up to 85° or 90° after closing with atmospheric moisture. The latter may be produced by damping all available spaces and gently dewing the plants about the axils of the leaves in preference to overhead syringing, but care must be observed, as plants which are closely plunged in tan or leaves are often injured by having too much water at this critical stage. It will of course be necessary to examine them regularly and to keep them moderately supplied with weak liquid or guano water, otherwise they will suffer from the opposite extreme. Let the bottom heat range from 85° to 90°, maintain a steady night temperature of 70°, and stir the fires early every morning in order to admit of timely ventilation when the warmth of the house approaches 80°.

Succession plants.—If the strongest of these were selected early in February and plunged in a bottom-heat of 85° they will be making the growth which usually precedes the appearance of the fruit. Gradually raise the temperature to 70° at night and 10° higher by day, water carefully, and defer overhead syringing until the fruit is well above the foliage. If not already done, get the strongest successions shifted into their fruiting pots. Let the crocks, pots, and soil be dry and warm, ram the latter very firm with a blunt-pointed stick, plunge in a sweet bottom-heat of 85° to 90°, and withhold water from the roots until they begin to work in the new compost. It often happens that this department at this season contains a number of good plants in rather large pots which they have not filled with roots. These should be examined, and if crocks, roots, and soil are not quite satisfactory, shake out and replot in pure loam, using pots one or two sizes smaller. Plunge in a sharp bottom-heat and treat as spring suckers. Examine the first batch of suckers which were potted about the middle of the past month, and give them a little water when the roots reach the crocks; also dew them over with the syringe on fine days and close early with sun-heat to start them into growth. If the heat in the bed has not receded below 85°, but little fire-heat will be needed in mild weather, as it will not be wise to force an elongated growth before the roots get well established in the new soil. Keep the young plants near the glass, ventilate on all favourable days, and cover up with mats at night.

Vines.—Practical Grape growers who have to keep Mrs. Pince, Black Alicante, and Lady Downes fresh, black, and plump until new Ham-burghs are ready, will not have to be reminded that the houses should now be closed and the

buds fairly moving by the middle of the present month. Assuming that the roots have the run of external and internal borders resting upon ample drainage, the inside roots, previously watered with cold water, may now be mulched and copiously watered with diluted liquid at a temperature of 90°; and as well matured wood has a great deal to do with compact shows, perfect fertilisation, and finish, a little extra fire-heat combined with early closing on fine days will enable the cultivator to steal a march upon the spring, and give more time to the colouring and finishing process, which should be complete by the month of September. Having so often drawn attention to the importance of an early start, a repetition of the above remarks seems uncalled for; but when we find Grape growers inquiring how they must proceed to make their Mrs. Pines indifferently coloured, and their Lady Downes become shrivelled to insure their keeping, one begins to feel that some at least are still in urgent need of the practical advice which will be found reprinted in the Calendar. When the buds begin to swell a higher temperature than that recommended for early houses may be indulged in; indeed, to have Lady Downes thin skinned, full flavoured, and capable of keeping fresh and plump until May, the Vines should receive Muscat treatment until the Grapes begin to colour, when Hamburg treatment will insure colour. Black Morocco and Gros Colmar, when properly managed and allowed a long growing season, are valuable for use from January up to March, but they should be ripe in September. Gros Colmar should hang for some time on the Vines after the leaves fall, and a few weeks in a warm Grape room will remove the earthy flavour which makes badly ripened examples uneatable. A promising late Grape, Mrs. Pearson, is well worthy of a place in every autumn and winter vinery. As a grower it is quite as free as its inferior relative, the Golden Queen. It shows an abundance of handsome bunches which set well, and my experience justifies me in saying it will keep for a long time and improve in quality after it is ripe.

Early houses.—When all the Grapes are thinned and the berries begin to swell away freely give the inside borders another liberal supply of warm diluted liquid and maintain a healthy growing atmosphere by damping the walls and floors with the same. Let the night temperature range from 65° to 68°, with a chink of air when practicable, and ventilate freely through the early part of the day to maintain the colour and texture of the foliage. A rise of 10° by day when fire-heat is applied will be quite sufficient, but 85° for a short time after the house is closed with sun-heat will add greatly to the size of the berries without distressing the Vines. If any part of the trellis remains uncovered tie, down the laterals in preference to hard stopping, and let all, with the exception of the strongest, have full play when the stoning process sets in.

Pot Vines.—The above treatment applies to fruit-bearing canes now swelling off crops. If all has gone well fresh roots will now be abundant and capable of taking warm diluted liquid at every watering. Encourage laterals where space admits. Shake out and repot cutbacks when they have made 2 in. of growth. Place them over a bed of fermenting leaves in a close pit and train near the glass.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

The glorious sunshine and balmy air now being experienced remind one of April rather than of February; still, we must not yet depend too much on the weather. More Peas may be sown. I like the round better than the wrinkled ones at this season. Pride of the Market is a thoroughly good Pea, but, as yet, scarcely cheap enough for the million; I am therefore sowing Telegraph, an excellent variety. Another sowing of Broad Beans may also be made; the giant class of Beans, of late so fashionable, I am not in favour of. I sow Early Mazagan and good old Green

Windsor. Few vegetables have come to the front more of late than Broad Beans eaten when about the size of Peas. Our first spring Cucumber plants will be in their places on Monday. We grow the first lot at the top of a stage where we place about a peck of soil in hillocks under each light, and as the roots come out more soil is added. Always have some in the house warmed. I have not grown Cucumbers long in this way, but I can recommend the plan. Last year they did really well, and doubtless they will do so this season. Tomatoes should be staked at once to lead them up to the roof of the house; the latter should be kept at from 60° to 65° at night, and there should be a proportionate rise with sun heat in the daytime, giving air when the temperature has risen from 70° to 75°, but screen the air through canvas if possible.

NOTES OF THE WEEK.

IN A GARDEN near EXMOUTH a Rhododendron bush is and has been one mass of rich colour since the first week in January. The common Laurels are also in full flower; Peach trees on a long wall are to a large extent out in blossom, and a *Maréchal Niel* Rose on the house wall has several good flowers on it. All in the open air.—DEVONENSIS.

WHITE CHIONODOXA LUCILLE.—In the Hale Farm Nursery, Tottenham, there is a pure white flowered variety of this beautiful and new bulbous plant. It differs in no way from the type except in colour, and is therefore a charming addition to hardy flowers, and we hope to soon see it common. Of the original blue form there is a wonderfully fine display of bloom, some hundreds of plants being in flower.

CINERARIAS.—We have received from Mr. Henry Ward, of Stoke House Gardens, Bristol, a charming and brilliant set of Cinerarias, very rich and fine in colour, and measuring about 2½ in. across. It is surprising to what perfection these originally simple little flowers have been brought. The seedlings in question are of a very dwarf strain, none of the plants exceeding 1½ in. in height.

THUNBERGIA HARRISI.—This is a handsome plant for adorning the roof of a stove or warm greenhouse. The slender twining stems are usually laden in spring and early summer with a profusion of large delicate purplish blue blossoms. It is of easy culture if planted out in a bed of good soil and kept free from insects. It is beautifully in flower in the gardens at Oldfield, Bickley.

SCILLA TAURICA.—Of all the early Squills this is the finest, surpassing even the beautiful and well known *S. sibirica*. The contrast of the red flower-stalks with the intensely blue blossoms is very fine, and the plant, being of taller growth than the others, shows its flowers off to better advantage. It is one of the brightest among the comparatively few plants in bloom at Mr. Ware's nursery, Tottenham.

IRIS FIMBRIATA.—This beautiful Iris, too tender for braving the open air of our climate, is a lovely plant for a cool greenhouse or frame, needing only the protection of glass in order to induce a profusion of its lovely blossoms in early spring. The foliage is similar to other Irises, but far more graceful; the flowers are large and showy, of a delicate lavender tint, and with beautifully fringed petals. We saw plants of it in the garden at Oldfield, Bickley, and were much struck with its beauty. It is of easy culture but is seldom seen outside a botanic garden.

PERSIAN CYCLAMENS AT CLAPTON.—In order to form an adequate idea of many plants they require to be seen in masses, and the Persian

Cyclamen is one of these. At Messrs. Low's nursery, Upper Clapton, it is grown by tens of thousands, and just now the bulk of the stock is in bloom, representing every conceivable shade of tint, from snow white to the deepest crimson. The plants in blossom are grown both in pits and houses, and in the latter the effect of thousands of plants ranged on each side of the central pathway may be better imagined than described.

ALONSOA INCISA.—This plant is not generally known as an inmate of the greenhouse, though it is one of the most valuable and beautiful that anyone can grow for early spring bloom. The intensely brilliant scarlet flowers, borne in dense clusters so plentifully, render it very showy. In Mr. Philbrick's garden at Oldfield, Bickley, it is one of the showiest plants in the greenhouse, and is found extremely valuable in winter for cutting purposes. The plants in question have been in flower for months, and are still in perfection. It is easily propagated by seed or cuttings.

PERSIAN IRIS (I. persica).—This beautiful bulbous plant is a fitting companion to the lovely Netted Iris (*I. reticulata*), which is now in bloom in all parts of the country. The delicate porcelain blue of the Persian Iris is a colour rarely met with among cultivated plants, and the rich purple spots that overlie this tint give the flower a rich appearance. It is now in great beauty at the Hale Farm Nursery, Tottenham, where it is found to be hardy, and where it frequently flowers before Christmas.

LEUCOCYUM VERNUM.—Of this charming spring bulbous plant there is a fine display in flower at the Hale Farm Nursery, Tottenham, there being broad sheets of some thousands of plants in full bloom. This is a plant that should in no case be omitted from spring flowering plants, as it is so distinct from all others, and the pendent, snow-white bells are so very beautiful. There are, Mr. Perry tells us, two distinct forms of this plant, one early, the other late, and not yet in bloom. These he considers as geographical varieties, the early occurring in the south parts of Europe, the later in the more northern parts.

THE ITALIAN ARUM (A. italicum).—One of the first amongst hardy herbaceous plants to push its foliage above the surface of the ground is this handsome plant, some fine leaves of which have just been received from Mr. Stevens, of Byfleet. They are large, arrow-shaped, and deep glossy green, traversed by a beautiful network of creamy white veins, rendering this Arum highly ornamental as a groundwork in masses under deciduous trees and shrubs. For such a purpose it is an excellent plant, and has a peculiar beauty of its own in early spring.

RHODODENDRON MAIDEN'S BLUSH.—The flowers of this new hybrid Rhododendron, received from Messrs. Veitch & Sons, Chelsea, show it to be a lovely variety quite different from any of the numerous kinds hitherto raised in that establishment. The flowers are about the size of that known as *Taylori*, and produced in similar dense clusters. The colour of the petals is a delicate blush flushed with pink, that of the tube being yellow. This is, we consider, one of the most charming of the group of what may be called greenhouse Rhododendrons.

PLANTS IN BLOOM IN NORTH WALES.—We have on the walls here a very dark Rose, from which several expanded blooms have been recently cut, and on the same tree I have just counted no fewer than ten buds in various stages of development. Daffodils in the pleasure grounds are now coming into blossom, and Primroses are in full beauty. Snowdrops are all but over. They have supplied us with large quantities of

cut flowers, and our pleasure grounds have been a sight to behold. Vegetation generally is unusually active. Apricots on walls are coming into bloom, and look at present very promising. Peaches and Nectarines, too, will not be long behind them unless they are retarded by frost.

—J. CLARKE, *Brynkindat*.

PEAR BLOSSOMS—There is at present an extraordinary show of blossom on Pear trees, both on walls, trained trees, and open standards, but their forward state causes anxiety, lest the season, hitherto so favourable, should change as the spring advances, and our present promise of abundance be reduced to small dimensions by harvest time. It is curious to note the effect of different seasons on different subjects; with us Apricots, Peaches, and other wall fruits are scarcely, if at all, in advance of seasons when the winter has been severe; and in orchards, Apples and other fruits show but little effects of the favourable winter we have had. Pears, however, are most precocious, especially late kinds, some having their blossoms quite expanded, while the buds of early orchard kinds, such as the Sweetwater and Lammas, are only just starting.—J. GROOM, *Linton, Maidstone*.

THE TEACHING OF FORESTRY.—A paper on this subject was read before the Society of Arts on Wednesday evening last by Col. Pearson. After dealing with the history of scientific forestry, and the extent to which it is practised in various countries at the present day, the paper treated on the conservation of forests of our colonies and dependencies, and strongly urged the necessity of establishing in Great Britain a school of forestry in connection with the State where young foresters could be trained, instead of sending them to Continental schools before drafting them to India and other colonial possessions for forest service. Several speakers subsequently discussed the subject, among whom were Sir Richard Temple and Prof. Thistleton Dyer, both of whom supported Col. Pearson in his opinion on the conservation of forests and the establishing a State school or schools in this country. It was finally proposed that a committee should be formed in order to bring the matter under the consideration of the Government.

FLORAL JEWELLERY.—Mr. Frederick Banks, of Birmingham, has shown us some jewellery in which the imitation of Orchid flowers is carried out in lieu of the usual conventional design which we generally see in work of this character. There is no doubt the floral world opens up a vast field of beautiful design for the tasteful artist, and one which is as yet unworked. To show the finer and more delicate forms of flower life, and particularly of northern flower life, seems to us a fitting aim for the jeweller's art. Plant and fruit forms have been used to a large extent by the nations that have pursued art with the best results; but as yet our every-day art, so to speak, is not influenced for good to the extent that it should be by the beautiful forms and colours of flower and fruit, particularly the latter. Fruits are so suggestive in their form for many kinds of receptacles, that much remains to be done with them in that respect, as well as in the finer work of the jeweller.

SPRING FLOWERS IN THE ISLE OF WIGHT.—I forwarded to you just now a boxful of flowers. They are the *crème de la crème* of my garden at this time, and form only a small part of those which are in blossom. The names of the flowers are these: Narcissus monophyllus (Lucii, Clusii), Corbularia nivalis, Chionodoxa acaulis, Tristylis and reticulata, Muscari Szovitzianum, Scilla biflora grandiflora and its white variety, Sisyrinchium grandiflorum, Claytonia virginica, Saxifraga Bursieriana, Puschkinia scilloides, Cyclamen Coum, Crocus Weldonii, C. vernus,

niveus, sulphureus, &c., A nemone fulgens grandiflora and A. stellata purpurea, Ficaria grandiflora and F. verna nivea, Hyacinthus amethystinus, Gentiana verna, Saxifraga oppositifolia, Trichonema, Fritillaria pudica, Erythronium Dens-canis album and roseum, &c. I could not bring myself to lay hands on Tecophylla cyanocrocus. It is surpassingly beautiful. I only regret that Chionodoxa Lucilie should be dethroned, for it seemed to me till yesterday to be the most captivating spring flower I had ever seen or should see. Still, it must be confessed that it pales before the other, though I think its habit is the prettier of the two. Narcissus Clusii has blossomed well in the open border, and stood the winter of 1880-81 without any injury. Narcissus minimus is an interesting little thing, and also out just now. Trichonema has mistaken February for June, and is a kind of portent. Fritillaria pudica greatly improves in size and colour as it gets more established in the ground. I owe Scilla biflora grandiflora to the kindness of Max Leichtlin, and I cannot thank him enough for it. But what shall we have to show in May and June if things go on at this pace?—H. EWANK, *St. John's, Ryde*.

PLANTS IN FLOWER IN YORKSHIRE.—The following are now in flower here, some of them showing the effects of the fine open winter by their earliness, and also others by their lateness, as in the case of Tussilago and Helleborus:—

Petasites fragrans	Polyanthuses
Hepatica angulosa	Primroses
acutifolia	Violets
triloba in variety	Daisies
Saxifraga Bursiana	Pulmonaria mollis
Rocheliana	var. alba
oppositifolia	tuberosa
var. alba, pallida, &c.	siluri
Omphalodes verna	officinalis (?)
Bulbocodium vernum	Scilla biflora
Crocus in variety	silica
Sisyrinchium grandiflorum	taurica
Galanthus in var.	Arabia in variety
Jasminum nudiflorum	Draba aizoides
Doronicum austriacum	Chionodoxa Lucilie
Leucocorydium	Erythronium Dens-canis
aricularis, various	Corydalis solida
Dianthus multiflorus fl. pl.	Aene none stellata
Erica carnea	Ficaria grandiflora
Vincas in variety	

I am somewhat surprised at the comparative lateness of Iris reticulata, which otherwise is doing well. Gentiana verna is all but out; some Roses on the walls have shoots 6 in. long, and the buds are swelling.—J. WOOD, *Kirkstall*.

SPRING FLOWERS IN BERKSHIRE.—As evidence of the extraordinary earliness of the season, Mr. Muirhead has sent to us the following list of spring-flowering plants at present in bloom in his garden at Paxton. He informs us that the majority of the plants are growing on a rock border:—

Anemone blanda	Hyacinthus splentens
Arabis albidia	carnea
alpina	B. lowi
Aubrietia deltoidea	Iris reticulata
purpurea grandiflora	Lomatium nudatum
græca	Myosotis silvestris
Cheiranthus Chere	Narcissus bulbularis
Crocus vernus	Omphalodes verna
Dondia Eppactis	Prunella cæsarica
Erantthis hymalis	dentulata
Erica carnea	puleherra
mediterranea nana	vulgaris (many varieties)
Galanthus nivalis	Saxifraga Bursieriana
Helleborus niger	oppositifolia
n. maximus	Scilla sibirica
Hepatica angulosa	Sisyrinchium grandiflorum
triloba cœulea	Viola dorata
c. alba	tricolor
c. rubra	

SPRING FLOWERS FROM DUBLIN.—I send you a few buds and blossoms as a token of a kindly Irish spring. They were gathered on a mild, showery morning—weather suited to the glory of the Daffodils. Of our large kind so well known to you I send blossoms and some in bud, so that they may be born with you, and so enable you to see all their freshness and beauty. Snow Glory (Chionodoxa) and Squills

rival each other, as do also the Grape Hyacinths and Spring Snowflakes (Leucojum vernalis), blooming now together with what is usually known as the summer-flowering species (L. æstivum), or rather its small form (L. Hernandæzi). Almond blossoms form a rose embroidery against a grey-blue sky, just as the crimson-scarlet Jan Quince embroiders our grey walls with Forsythias of both kinds for company. Iris reticulata, Primroses, Polyanthes, and Narcissi of many kinds are luxuriating in such a genial, showery spring. Even N. tazetta of sorts are blooming in sheltered nooks by the walls.—F. W. B.

PLANTS IN BLOOM AT HURWORTH GARGE, near

Darlington, on March 1:

Anemone blanda	Helleborus atro-rubens
(single)	colchicus
Arabis albidia	niger var. maximus
procurrens	Jasminum nudiflorum
Aubrietia g. æca	Leucojum vernum
g. superba	Myosotis dissitiflora
Bulbocodium vernum	Omphalodes verna
Crocus, various	var. alba
Cyclamen Coum vernum	Polygala Chamaeluxus
Daphne Mezereum	var. purpurea
Doronicum caucasicum	Potentilla splendens
Draba cuspidata	Primula caschmeriana
Erythronium Dens-canis v.	denticulata
album	nivalis
Erica carnea	Primroses, single and double
c. alba	Polyanthus, various
Erantthis hymalis	Pansies, various
Galanthus nivalis	Pulpa naria aurea
n. fl. pl.	Puschkinia Bursieriana
Imperati	coriophylla
Gentiana acaulis	oppositifolia
Hepatica angulosa	major
triloba	maxima
t. alba	splendens
t. rubra and r. fl. pl.	Sisyrinchium grandiflorum
	Violets
	Vinca major

—J. SIMPSON.

Books.—F. P.—Rivers' "Rose Amateur's Guide" or Canon Hale's book on the Rose.

Narcissus minor.—Can any of your readers inform me whether the dwarf Daffodil (Narcissus minor) is an artificially produced variety? or if it grows wild in any part of Europe like a large Daffodil?—A. C. B.

Sparrows and Crocuses.—If Mr. Bradbeer will insert in his Crocus beds a few pegs, and string from them a line of scarlet worsted on each side of his flowers, I do not think that a sparrow will go near them.—J. W.

Curious Cineraria.—*T. E. Fenwick*.—The flower you send represents not a very curious sport not at all common. The florets of the ray are all tubular instead of flat, as in some forms of the common Daisy. It would be interesting to see if the single ray can be perpetuated by seed.

K. R. (Birkdale).—Try Messrs. Veitch & Sons, King's Road, Chelsea.

Lichen on forest trees.—What causes Lichen and other analogous matter to grow upon trees? Such growths are generally on one side of the tree—perhaps on the south, east, north, or west, and sometimes the trunk is enveloped. Any information your readers can supply on this subject will be welcome.—S. K. T.

Names of plants.—*W. Fox*.—Primula verticillata abyssinica. —*Mac*.—Narcissus Pseud-Narcissus var. minor.

—*C. M. O.*—Pulmonaria saccharata (with spotted leaves); the other is apparently P. austriaca. What is commonly known as Primula altaica is but a form of the common Primrose. P. altaica is a true wild species. —*C. F. Catley*.

—No. 4 is a species of Ficus. Others next week. —*Amey*.—Rivina (Indurina). —*R.*—Rhododendron argenteum. —*J. D.*—Senecio Chiesbreghtii. —*Sylvester*.—Cedrus atlantica.

—*Sub (Chahov)*.—Apparently Calcege flaccida, but we cannot name accurately without seeing foliage, bulb, and perfect flowers. —*T. C.*—Thuja occidentalis (Linnaeus); 3, Retinospora obtusa (Siebold); No. 2 is the same as No. 3, either growing in an unfavourable situation, or a dwarf variety, so far as can be judged from such scanty materials.

COMMUNICATIONS RECEIVED.

R. M.—W. T.—V. & Sons.—F. M.—J. W.—J. D.—G.—J. R. M.—W. D.—Mc I.—A.—V.—H. H. D.—E. L.—J.—J. S.—W.—C.—W. D.—E.—G.—J. S.—W.—B.—E.—H.—W.—W.—B.—O.—J.—G.—S.—J.—D.—C.—B.—S.—C.—D.—J.—C. C.—W. H. F.—W.—E.—G.—A.—D.—J.—W.—J. M.—W. H.—C.—H.—E.—Mac.—F. G.—P.—W. C.—C.—D.—G.—S.—B.—C. R.—Daffodil.—H. T. W.—J. G.—J.—L.—C.—B. S.—W.—T. M. E.—A.—P. A.—K.—P. G.—J. S.—A.—C.—J.—E.—H.—H.—M.—G.—J. W.—M.—J.—C.—Amy.—G.—C.—S.—K.—J.—D.—Subscriber.—T. K.—Sylvester.—P. G.—Devotiensis.—R. D. L.—J. R. W.

No. 538. SATURDAY, MARCH 7, 1882. Vol. XXI.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

HEPATICAS.

THE poet Ovid, who edited the Roman Calendar in very pretty Latin verse, tells us in the introduction of a conversation he had with Janus, the god of New Year's Day. The poet remonstrated against the season Janus had selected. "Why should not the new year begin at the vernal equinox, as it used to do in the good old times? Why did the god prefer the cold and dead time for his festival? There were no flowers, no green fields, no lambs, no birds singing, no swallows, nothing but dullness and gloom." "The winter solstice," replied Janus, "is the natural end of the annual cycle; with the new year Nature makes a new start." Ovid acquiesced in the answer, which expressed the prevalent belief that the end of the year is the line between the wane and the revival of plant life. But neither Ovid nor Janus were gardeners. If they had been in the habit of transplanting hardy herbaceous plants and bulbs through the autumn and winter, as I have been, they would have known that progressive activity for next year's flowering generally begins long before Christmas, and that according to this test the year ought to begin about the autumnal equinox. But no precise time can be drawn between the annual decay and renewal of plant growth. In many plants the two processes visibly overlap, as *Asters* and other late-flowering Composites send up their young shoots for next year's flowering whilst still in flower. With these, as well as with all early flowering plants in this temperate zone, a slow and sure progress is going on all the winter whenever the ground is not actually frost-bound. Even in the coldest winters the hardy little *Hepatica*, whose flowerbuds are born in October, contrives to find mild intervals enough to perfect the development of the flowers before the first day of spring.

The *Hepatica* is a flower that requires no special pleading to commend it. Everyone knows it and wishes to have as many plants of it as he can. Where the soil and other conditions suit them they may be increased tolerably fast, but no plant is more frequently regretted as a failure. In this respect they resemble their near relations, the Christmas Roses, and I think that where one does well the other will. For some years I despaired of them here, till I took to excessive draining and to growing them on rockeries and raised beds, and now they do very fairly in a variety of soils, for I have them growing in fibrous loam, and in moist peat, and in a mixture of the two. They do well either in sun or in shade, provided they are not in a soil which gets parched up in summer, which they cannot endure. Still they have special antipathies to some soils, though I cannot say what they are. I was in a nursery garden near Derby last week, where the soil and drainage seemed to be perfect, and where everything does well except *Hepaticas*. *Gentiana verna*, for instance, was so vigorous that I mistook it for *G. acaulis*. *Dodecatheon Jeffreyanum*, I thought, was a strong bunch of Orange Lilies just appearing through the ground, but the *Hepaticas* were only existing.

The fine single blue American *Hepatica* called *H. angulosa* is a stronger and more vigorous species than any European kind, and increases faster and is a beautiful plant if slugs can be

prevented from eating the buds. Of the old *H. triloba* as many as eight or ten single varieties are enumerated by nurserymen. As the species comes up freely from seed it is perhaps a wonder when Nature has made three distinct colours to start with that the variation of colour is not greater in cultivation. I have only seen four really distinct—white, pink (wrongly called red), blue, and purple, the latter known as *H. Barlowi*. The *Hepatica* improves by doubling. I have never seen or heard of more than two doubles, pink and blue, both of them brighter in colour than their singles. Of these the double pink has the strongest constitution of any of the species, and the double blue the weakest. The best plants of double blue I have ever seen were growing in light, sandy soil, but with a wet subsoil, in a garden at Bournemouth. I never heard where, or by whom, the double *Hepaticas* were raised, but gardeners will agree in wishing that the raiser had lived long enough to produce a double white. The kindest treatment of *Hepaticas*, and that which they like best, is to leave their roots undisturbed, but to give them at the beginning of every autumn a thin dressing of leaf-mould and finely sifted manure; but as most people wish to increase their stock, the question arises as to the best time. Gardening books advise us to divide them as soon as the flowering is over. The writers probably know that their advice would not be followed if they advised dividing just when the flowering is beginning, which, I think, is a much better time; but any time between October or March, if the weather is favourable, is better than any time between March and October. The new leaves begin to grow before the flowering is over, and the old leaves ought to be retained if the plant is healthy until the new ones, as it were, absorb them. Upon the healthy development of the new leaves depend the flowers of next year. Their growth is completed in a marvellously short space of time—generally before the end of April, and nothing ought to interrupt it. Again, if the plant is divided in summer, the leaves probably die, and the flower-buds are deprived of their shelter, which is most essential to them in winter. So much for dividing. In transplanting it must be remembered that perhaps no other plant has roots which extend so widely and so deeply in proportion to the show the plant makes above ground. Dig up a ball as large as you will, some stray bits of wiry root always appear outside it. I said that *Hepaticas* grow readily from seed, but if the seed is stored it seldom germinates, and if sown at once it will not come up till the following spring. The seeds grow best when allowed to shed upon the crown of the plant, if covered as I advised with fine soil. They may be transplanted at any time, and with careful nursing become good plants in two years. A variety of species called *H. acutiloba*, with the lobes of the leaf more pointed than the common form, does not seem to have any particular merit. I see another variety described as major, a rank more often conferred upon plants in catalogues than maintained in gardens. Another is fragrans; but who gathers their *Hepaticas*? so what advantage is this? I have once or twice seen a *Hepatica* with very prettily marked leaves like those of a *Cyclamen*—*cyclamenifolia*, I dare say, it is called. I have looked in vain for this in catalogues. It is occasionally found, I think, in the Tyrol. I may remark in conclusion that *Hepaticas* do not seem to me to flower the best in the soils in which they grow the strongest; if there is too much leaf-mould in the soil they make large leaves and roots, but the flowers are apt to be all sepals, and to have an abortive appearance.

C. WOLLEY DOD.

Edge Hall, Malpas, Cheshire.

EARLY FLOWERS IN TOWN GARDENS.

I THINK you are a little hard on our "smoke-begrimed London" in the paragraph in last week's GARDEN on Miss Owen's flowers. I do not see anything mentioned except *Auricula* that does not grow well with me. This spring I have had some charming bits—the lovely *Ins reticulata* growing vigorously out of a carpet of yellow *Primroses*, while *I. Krelagei* is growing not far off from out of a clump of *Saxifraga Burseriana*. With me the first bloom of *I. Krelagei* was twenty minutes in advance of that of *I. reticulata*, both having come out one sunny afternoon. In another corner a lovely bit consists of a mixture of the deep purple dwarf, with a few tall growing orange *Crocuses*, out of which *Galanthus plicatus* (with me the best *Snowdrop*) rears unusually tall heads of bloom. Nor is a bit of variously coloured *Primroses* to be despised as a carpet for some of the taller and finer *Daffodils*, while here and there tall blooms of *Myosotis disitiflora* prevent the *Daffodils* being in too close connection with the many-coloured *Primroses*. The tiny *Daffodil* (*Narcissus minor*), which ought to be called *minimus*, is exquisite, with its nodding blooms just showing among a mass of deep blue *Scillas*. A great lump of *Chionodoxa Lucilia* has been sown alone without any admixture beyond a carpet of *Sedums*, and has proved very lovely, and its blooms unusually large. The broad-leaved *Saxifrage*, given to me by Mr. Ingram, of Belvoir, is very handsome, with its fine umbels of pink blossoms. Of course there is nothing new in all this, but it seems to me such a pity to see the great waste of garden ground belonging to the many suburban houses all round London a blaze of glaring colours during June, July, and August, and brown mould, dreadfully tidy, all the rest of the year. Many people are deterred from trying plants in London by being told things will not grow. Only the other day a *Polyanthus* grower wrote me that it was useless his sending me any; they would not grow with me; whereas, as a matter of fact, they do grow luxuriantly and splendidly. Then, again, few people seem to realise the beauty to be got out of even a small garden by artistic mixtures of colour of even the commonest flowers. They seem not to be satisfied unless they have got some delicate novelty which is not suited for growing in our smoke-begrimed old town. I should much like to promote more hardy plant gardening in the London suburbs; and if my experience of what I find to do well, and a few suggestions how to group the various flowers would from time to time gain admission into your columns, I will gladly send them.

H. STUART WORTLEY (Colonel).

[The colonel's suggestions will be very welcome. Notwithstanding the difficulties in the way of London gardening, no doubt those who have the will and knowledge can master them, but one despairs of the great mass of London gardens. The system pursued in them is fatal to all progress and beauty. The enclosures, too, of the gardens even in the best suburban roads are against all progress—good ground turned into greasy, bare borders, where the few poor trees grown prevent any flower growing well under or near them. In many cases great improvement could be effected by throwing a number of gardens into one sunny, open space, and putting it in the hands of a good and tasteful gardener with some knowledge of plants.]

The Widow Flower.—It may perhaps give additional interest to the purple *Scabiosa* to be told that it is known in some places by the name of the Widow Flower, also that the seed of that sweet flower was sent from France by Virginia, during her enforced absence, to her brother Paul, to adorn their joint garden in Mauritius, or Isle of

France. This information we have from St. Pierre, the writer of the touching history of "Paul and Virginia."—A. G., *Mid-Scotland*.

EDITORS' TABLE.

THE WHITE ERICA CARNEA, from York, is a very interesting little bush, though not quite so cheery looking as its pink ally. It is, nevertheless, good as a variety, and one of the various dwarf Heaths well worth growing.

ANEMONE BLANDA.—This fair spring flower from York, where it was first introduced. We have seen it handsomer and earlier this year. It is a precious addition to our rock gardens and choice early borders, flowering distinctly before the better-known blue Apennine Anemone.

THE FIRST DAFFODILS from the not very early district of Tottenham are the little *N. minimus*, which Mr. Ware seems to grow finely; *N. Telamonius plenus*, a noble double kind; *N. obvallaris*, and the common English Daffodil, all bright in the early March days.

BOLD SNOWDROPS.—We have some bold Snowdrops, from Mr. Stevens, of the newer kinds, but if we must tell the truth we are by no means persuaded that any of these new Snowdrops are more graceful or more valuable than the old one; in fact, we believe the common Snowdrop to be the most graceful of the series—the single form, be it understood. The double Snowdrop is a very poor thing in point of form.

NUTTALLIA CERASIFORMIS.—This quiet looking, but graceful flowering shrub comes to us from Mr. Stevens, laden with its modest little racemes of white flowers. It is evidently a very hardy, and also a very early, shrub, which will never perhaps be very attractive, but interesting for collections.

IRIS RETICULATA FROM GUNTON.—I am longing for the day when our fair hardy flowers will be seen in some such profusion and condition as the beautiful *Iris reticulata* has just come from Gunton Park. Fifty heads of this richly coloured violet-scented flower tell what many a poor little "sticky" labelled plant will do when grown well and plentifully, treated in a bold and artistic manner as to position and surroundings.

DRABA CUSPIDATA.—One of those curious little yellow-flowered Drabas, like Moss in stature, but seldom seen good in gardens, wanting to be in hard, beaten, rocky soil, and then grown into bold tufts or planted in little colonies to show any effect. But even with this care they seldom enter into the front rank of rock flowers. From Messrs. Backhouse.

EARLY-FLOWERING SHRUBS.—From Grasmere, Byfleet, Mr. Stevens sends a basketful of his earliest flowering shrubs and hardy flowers. No fewer than a score of shrubs are in bloom, the chief being the old Japanese Quince (*Cydonia japonica*), of which Mr. Stevens has numerous varieties, varying principally in the colour of the blossoms, one being pure white. The various kinds of Barberry are very pretty, particularly *Berberis Darwini* and another called *B. fascicularis hybrida*, which has both ample foliage and dense clusters of bright yellow blossoms. *Cassandra calyculata* is a pretty dwarf shrub with long wreaths of white Lily of the Valley-like blossoms. *Andromeda*

floribunda, a near ally of the last, is likewise pretty at this season. Some beautiful flowering branches of the Almond (*Amygdalus communis*) show how fine it must be at Grasmere when seen in the form of large trees. The myriads of tiny golden blossoms on the Dogwood (*Cornus Maa*) render it an attractive shrub just now, as are also *Spiraea Thunbergii* and the double *S. prunifolia*, which will soon be masses of bloom. Various kinds of Heath, of which *Erica carnea* is the showiest, are also sent; likewise early Squills, the pretty *Soldanella montana*, and *Pulmonaria grandiflora*, the finest of all the Lungworts. The latter has large, showy, deep rose-pink blossoms that change to purple.

VARIED AND LARGE PRIMROSES of our native kind come to us from Quedgeley House, Gloucester. The charms which Mr. Boscawen enjoyed weeks ago in Cornwall are now gradually unfolding over the land, and happy those who settle the question of spring gardens by growing well such native or hardy things. Our native Primrose, in its many forms, has a great advantage over many early flowers in the length of its blooming period.

BORAGO CRITICA.—The Old Cretan Borage comes from Linton, a curious, strong and rampant plant, not worth a place in the garden proper, but, like the winter *Heliotrope* and other easily grown and vigorous plants, not at all amiss in the lane or hedgerow, or in an isolated clump of shrubbery. Its spiked flowers are pretty just now. We are getting so many good spring things into our garden in early spring, that one can no longer say flowers are scarce at this season.

MYOSOTIS DISSTIFLORA.—This beautiful Forget-me-not comes in its best form from Linton, vigorous with the rosy flowers plentiful among the blue ones. I well remember getting the first plants of it from Mr. Atkins, of Painswick, years ago that were ever received in London, and being startled at the rich beauty of a good bunch of it. Since then it has become a well-known inhabitant of our gardens, though not always well grown, owing to soil and climate, though it is happy enough in many country gardens.

SAXIFRAGA MAXIMA.—A baby plant less than 1 in. high with flowers nearly 1 in. across. A wonderful example of the finer type of alpine flower in which the plant is smaller than many a Moss, but the flower bold and vigorous, as if it had really "something behind it." It is a curious illustration of a fact that the flower is the highest life of the plant, so to say. Whether this maxima is a variety of our native *S. oppositifolia* or any of its Continental allies we know not, but as sent to us from the York Nurseries it is a marvellous little plant.

FRAXINUS FROM GUERNSEY.—A charming boxful of these fragrant and graceful Cape bulbous plants from Mr. Smith's Caledonia Nursery, Guernsey, shows us how finely they can be grown in the Channel Islands—far finer than ever we have seen them here. The kinds sent are *F. refracta alba* (odorata) and a new kind, which Mr. Smith calls *F. Leichtlini major*, a cross between *F. Leichtlini* and *F. refracta alba*. Mr. Smith says it is larger, stronger, much more branching, and earlier than the true *Leichtlini*, and he considers he is justified in giving it another name. Few know the charms of these plants; they are elegant in form, soft and delicate in tint, and agreeably fragrant, the colour being somewhat similar to that of Cow-

slips. With a view of making these beautiful plants more widely known we hope soon to give a coloured illustration in *THE GARDEN* from the Caledonia Nursery specimens. How they are grown so finely in Guernsey it would be interesting to know.

FINE VARIETY OF CATTLEYA TRIANÆ.—Mr. Fowler sends from Ashgrove, Pontypool, a magnificent flower of a variety of *Cattleya Trianæ* surpassing anything we have seen among the numerous forms of this variable Orchid. It much resembles that recently named *Backhousiana*, having the heavy pencillings of deep rich amethyst on the delicate lilac-purple of the broad petals, but the lip is much deeper and richer in colour than in that variety; indeed, we know of no other *Cattleya* that has such an intensity of colour on the labellum.

THE TAURIAN SCILLA.—Judging by the flowers of this, the Taurian variety of *Scilla bifolia* sent by Mr. Ware, it is the finest of that group of early Scillas that have a pair of leaves and long racemes of blue flowers. *S. taurica* has reddish stems and intensely deep blue flowers in dense clusters. With it comes the white variety of *S. bifolia*, the ever welcome *S. sibirica*, and another called *S. amœna*, but which is quite different from that we have hitherto known under that name. That sent has pale blue flowers, and is a very pretty flower.

THE VARIABLE HEPATICA.—From the crowds of *Hepaticas* in the Hale Farm Nurseries, Tottenham, Mr. Ware sends an interesting and very pretty one called *H. triloba variabilis*, so named on account of the flowers changing from deep purple to pure white, so that the blossoms on each tuft assume a variety of shades. Among our many novelties none surpass the *Hepatica* when well placed, and all these charming varieties should be carefully preserved. Those who raise the plant from seed should look after varieties.

RHODODENDRON HODGSONI.—A noble truss of this Indian Rhododendron comes from Messrs. Dickson & Co., Waterloo Place, Edinburgh. The cluster, which is 8 in. across, is composed of about a dozen and a half of large bell-shaped blossoms, poised horizontally, of waxy texture and of a pure uniform white, the stamens being tipped with black anthers. The leaves surrounding this noble flower cluster are some 7 in. long and very broad, covered with silvery down beneath, and deep green and much wrinkled on the upper surface. This is one of the grandest of all the tribe of Indian Rhododendrons in cultivation, and the effect of large specimens of it must be very fine. Messrs. Dickson say that they have a plant of it in their Pirbright Nurseries carrying twenty-eight trusses of lovely flowers.

Destroying crickets.—If my experience is of any use to "E. H." (p. 138) in dealing with crickets in plant or fruit houses, I may tell him that I have never found anything so effectual as the use of plenty of water in the places in which they are supposed to congregate; a dry, warm flue, or a chamber in which hot-water pipes are placed are favourite resorts of crickets, and if they are found to take up their abode there every chink and crevice should be well saturated with water morning and evening. If "E. H." has many of them he must not object to give them a bath at ten o'clock at night, and to deluge every position they occupy, not with mere sprinkles of water, but with sufficient to lie in pools for an hour or two; if this is persevered in, he will find they will soon seek drier quarters.—J. C. CLARKE, *Cheltenham, Taunton*.

ROSE GARDEN.

PRUNING ROSES.

TIME was when Roses were pruned any time after the fall of the leaf. They were mostly summer kinds, and flowered but once. After flowering the wood and leaves ripened, and as soon as ripening was completed, Roses were either pruned at once or at any season when convenient up to the middle of February. The exact time was held to be of little moment so long as the Roses were pruned and the wounds healed before the rise of the sap. But all these stereotyped times of pruning are now set aside. The introduction of perpetual Roses, and the virtual monopoly that this race has established in our Rose gardens, has revolutionised our times as well as methods of pruning. Instead of pruning before the rise of the sap, the very copiousness of its flow is accepted as a sort of index that the time to prune has come. What a waste of force! many exclaim. True; but what a saving of buds and of Roses. The fact is, in this manner of pruning Roses more than in most others we lose to gain. The upper buds are left as decoys for the excitable sap. As they break into leaflets the pressure is removed from the lower buds, and the latter virtually rest or stand still. While they do they are safe from the vicissitudes of the weather, and it is chiefly to keep these lower buds in a semi-dormant condition that the time of pruning Roses has been pushed further and further forward into the spring. With the higher beauty and increased floriferousness of perpetual Roses we have to accept their greater sensitiveness to injury from cold, and their higher excitability. So excitable are many of our modern Roses, that they can hardly be said to be ever at rest. This wakeful growing condition makes the time to prune a matter of difficulty—it is altogether so different from the long rest of Cabbage, Moss, Scotch, and climbing Roses. The highest art in pruning Roses may be said to be reached when we cut them at the best time to ensure the development of the best flowering and best placed shoots. But, alas! these are by no means always, nor often, found together. The best flowers might often be produced from the buds on the extremities of the shoots; but were these chosen the symmetry of the tree and succession of good flowers within reasonable space might both be rendered impossible. Thus we must prune, not only for the immediate future, but for succeeding years as well. By pruning early, our Roses in such seasons as this has been up till now, the 1st of March, might bloom in May, provided no spring frosts cut them off. As a rule, however, Roses are wanted for showing and other purposes chiefly in June and July; therefore, the time to prune must be determined to a considerable extent by the time of flowering.

When to prune.—Pruning Hybrid Perpetuals should for the most part be done in March. Prune the hardier and commoner ones in the first week and go on pruning all through the month, leaving a few till the first week in April, that will give five or six weeks to complete the pruning of this class of Roses, and the extension of the time of pruning will tell with good effect on the prolongation of the season of blooming. Tea Roses may be pruned in April and up to the middle of May. Of course these remarks apply merely to what may be called the spring pruning of Roses. Where any considerable collection is grown, more or less pruning will be practised almost every month in the year. But these are not referred to here; and now

As to modes of pruning.—This will turn very much upon how much or far should the thorns be cut back. Possibly did we know our Roses more thoroughly, everyone would have its own special cut that would suit it best in regard to length as well as time. In the absence of such special knowledge the pruner may safely generalise in practice—thus: the weaker the Rose the harder it should be cut back; the stronger the less. The latter axiom may be said to run to extremes in *Maréchal Niel*, for this magnificent Rose thrives

best probably unpruned, at least as far as the practice of stopping its shoots is concerned. Its pruning and that of a few others should consist of a thinning out of any excess of shoots and of weakly ones. But these Roses are exceptional, and though there is an infinite variety of strength and length of growth among Hybrid Perpetual Roses, the whole difference in length may almost be included within the two extremes of an inch and a foot. To cut back to within an inch of the old wood would be called very short pruning; to leave a foot of last year's wood is more than most cultivators would allow. In practice, from 4 in. to 8 in. is a common length to leave the stronger growers. Some, however, might be left 18 in. with advantage. A good deal may depend on the number and strength of individual shoots as well as the character of varieties. At times the wood of Roses is very imperfectly ripened. There is nothing gained, but, on the contrary, very much, perhaps all, lost by leaving long shoots of un-ripened wood. It is useful to prune back as hard as possible in all such cases. Better bloom and healthier wood will be produced from one ripe bud at the base of a shoot than from half-a-dozen spongy, watery, albeit probably better looking ones at a higher elevation; therefore, at whatever point we prune to, it is of vital importance that it should be close to a thoroughly ripened, well posted bud.

D. T. FISH.

The pruning season to most rosarians is an interesting and yet an anxious time—interesting because it is really the beginning of the new Rose year, and an anxious time because some morning in April or May we may awake to find, much to our discouragement, a frost of from 8° to 10°, putting an end to all our cherished hopes. To say that we have a good Rose season once in a decade is, perhaps, too ungrateful, and yet it never far off the truth, taking into account severe winters, late the spring frosts, too much rainfall or the want of it, after the gales, to say nothing of insect pests, against which the rosarian has to contend. And yet, how fully are we repaid when in some June or July morning we stroll among our Roses and behold them a "thing of beauty and a joy for ever." A well-built bloom of *Marie Baumann* or *Alfred Colomb*, or it may be the equally fine form of a *Monsieur E. Y. Teas* or *La France*, at once banishes all our murmurings and inspires us with further and fuller zeal.

Our Roses here, *i.e.*, the Hybrid Perpetual class, we have usually pruned about the middle or third week in March, but, considering the forward season and the advanced state of the plants, we deem it advisable to prune this year at least fourteen days earlier. The time being fixed, the question arises how shall we best perform the operation—not as I have frequently noticed, by cutting all sorts down alike. No; pruning must be done in accordance with the forms of growth and the flowering habits of each variety. For *Marie Baumann*, *Louis Van Houtte*, *Lord Macaulay*, *Xavier Olibo*, *Senateur Vaisse*, *La France*, *Monsieur E. Y. Teas*, *Alfred Colomb*, *A. K. Williams*, *Duke of Wellington*, *Dr. Andry*, *Beauty of Waltham*, *Baroness Rothschild*, and *Marquise de Castellane* severe pruning is necessary to insure fine well-built exhibition blooms, and for those who prefer this class of flowers to those of an inferior type, but in greater quantity, I should recommend that they be pruned back to, say, three or four eyes from the base of the young shoots, never forgetting to cut away all thin and weakly wood.

To prune the following varieties in the same way as the above would be to court failure. Being of stronger growth and not so floriferous, I would suggest that they be left with from six to eight eyes from the base of the shoots. Among Roses of this class are to be found the following: *Mme. Clemence Joigneux*, *Madame Lacharme*, *Madame Hippolyte Jamin*, *Paul Neron*, *Paul Verdier*, *Auguste Rigotard*, *Madame Gabriel Luizet*, *Francois Michelon*, *Duke of Edinburgh*, *Baron de Bonstetten*, *Edouard Morren*, *Abel Carrière*, *Madame Sophie Fropot*, *John Hopper*, *John Stuart Mill*, and *Mlle. Annie Wood*. Some of the above, and indeed many of the stronger-growing varieties of

the Hybrid Perpetual class, are not unfrequently used for pillar Roses, and with success. Where they are used as such they may be treated the same as climbers properly so called, pruning sparingly, taking out worthless shoots, and shortening those left only at the extremities.

Beeton. W. H. FRETtingham.

Root-grafting Roses.—It is probable that this way of increasing Roses may in some cases be carried out earlier than the last week in February, but we do not usually get our propagating bed ready before that time, and genial temperature is required to ensure prompt success. The Dog Rose grows abundantly in the hedges round here, and I have just grafted a quantity of the Brier roots dug from the banks in the fields with pieces of Rose shoots taken from the best Hybrid Perpetuals; and I shall be much disappointed, judging from previous experience, if the principal part of those grafted Roses do not flower this coming summer and autumn. The chief requisites of success are to obtain healthy roots of fair strength—pieces of roots will do—just starting into growth, and the scions or grafts should be obtained from dormant shoots of strong healthy plants; weakly shoots do not succeed so well. A sharp knife is an absolute necessity. A smooth cut should be made on the best face of the stock, and the scion cut to fit it; the two should then be bound together tightly with soft matting or raffia. I prefer the latter. The bark of the stock and scion should fit closely on at least one side. As fast as they are grafted they should be potted into large 3-in. pots if they are large enough, potting the stocks sufficiently deep to bury the bottom of the graft to exclude the air; this saves grafting wax or clay. Plunge the pots into a bottom-heat of 75° in a close frame or pit, and shade from bright sunshine until the grafts are able to bear it without injury. I prefer sawdust for a plunging material, as it maintains a nice moist, steady heat.—E. HOBDAY.

INDOOR GARDEN.

Resting Gloxinias.—*J. H.*, p. 126.—Gloxinia bulbs will rest quietly for four months or longer if not subjected to too much heat and moisture. After four months' rest in a temperature of from 50° to 55° they will start again freely if placed in a temperature of 60°, with a moderate degree of atmospheric moisture. Bulbs going to rest at this season of the year should be placed in a dry part of an intermediate house, or in a warm shed where the temperature ranges from 45° to 55°.—*J. K.*

Raising Pelargonium hybrids.—Last year about this time I had some zonal seeds saved from different varieties the previous summer, and I sowed them in a pan along with a number of other half-hardy kinds. They were the first up, and though an accident deprived me of the majority of them, the remainder grew robustly and flowered in the autumn. Though the result contained nothing remarkable, I was encouraged to try hybridising the show and regal Pelargoniums; for instance, dark kinds with whites. The two whites I used were *Claribel* and *The Bride*, and, so far, like last year, the seed (out of a frame full of other things) has been the first up, and I certainly think every seed grew. The temperature of the hotbed I kept between 60° and 65°.—*W. J. M., Clonmel.*

Summer treatment of Poinsettias.—Last year I had a considerably larger stock of Poinsettias than was required for pot work. A quantity of the oldest plants, instead of being consigned to the rubbish heap, were cut down close and planted out in the open air on a south border about the end of May. They soon commenced to grow, two or three shoots being on each plant, and in most cases stronger than those on the plants that were potted. They continued growing all summer, when they were carefully lifted in September and placed in a moderate temperature near the glass to set root action in motion again.

The flower-heads, when fully developed in December, measured from 12 in. to 15 in. across, and in every respect outvalued those growing in pots. I have never seen nor heard of *Pinsetias* being planted outdoors, but I intend planting more of them in the same manner this summer.—THOS. CARLTON, *The Gardens, Wildernesse Park, near Sevenoaks.*

Hothouse furnaces.—In writing about boilers and fire-brick furnaces, "Peregrine" (p. 109) has lighted upon a subject that needs careful discussion. I think, so far from finding his views controverted, he would rather have found considerable support had he been privileged to see and inspect the remarkable French multiple stage furnace erected in the Smoke Abatement Exhibition, at South Kensington. It is known as Perret's patent, and is chiefly employed where fixed for supplying hot air for trade drying purposes. This furnace is composed solely of an inner casing of fire-brick, and has at intervals of about 9 in., one above the other, four stages, semi-arched, of fire-clay 3 in. in thickness. The lower stage has an interval of about 12 in. at the far end; the second one, the same space in the front; then the third behind, and the fourth in front, so that the heated air from the fire first lit in the lower chamber ascends between each stage, upon which is laid a thin coating of fuel. This gradually ignites, until presently the whole, right up to the top stage, is a mass of red-hot fire, not glaring, but seething; and when the superheated air reaches the top stage it is somewhere about 1000° Fahrenheit. Such a heat could never be obtained where the fire was in an iron casing. Not the least remarkable fact connected with this furnace is that only the merest rubbish, literally the refuse of all the other fires in the exhibition, is consumed, and in time is reduced to mere dust. This furnace may be left with entire safety for twenty-four hours and then found to be full of heat. M. Perret believes that if iron pipes—a sort of horizontal tubular boiler—were fixed just over the top stage and then heated air passed between them, instead of passing it away into a hot air flue, that a great success would be the result. This furnace is one of the most remarkable things at the exhibition, and if sent to Manchester, as announced, northerners will do well to have a look at it.—A. D.

Climbing plants.—"Glengall" (p. 109) may rely on the following plants giving satisfaction under the shelter of a verandah: For pillars select *Escallonia macrantha*, the Exmouth *Magnolia*, *Ceanothus azureus*, *Ficus japonica*, *Cratogeomys pyracantha*, and *Cotoneaster microphylla*. For the roof, *Tecoma grandiflora*, *Passiflora corulea*, *Clematis indivisa lobata*, *Passiflora Newmani*, *Bignonia jasminoides*, and *Mandevilla suaveolens*. For the back wall, yellow *Banksia Rose*, various *Tea Roses*, *Ampelopsis Veitchi*, *Honeysuckle*, golden or evergreen, *Buddleia globosa*, *Ceanothus Gloire de Versailles*, *Rhynchospermum jasminoides*, and *Coronilla glauca*. In the warm conservatory with roots outside plant *Bignonia Chere*, *Kennedia monophylla*, *Tacsonia exoniensis*, and *Plumbago capensis*. For the roof of the heavily-shaded fernery there is nothing I know of so suitable or beautiful as *Lapageria rosea* and *L. alba*; they luxuriate in a cool, shaded position, and will grow in soil suited for Ferns. In a verandah on the south side of a house and free from draughts, viz., enclosed at both ends, almost any of what are called greenhouse climbers would be safe in the southern parts of the kingdom; but if open at the ends, so that cutting winds get full sweep through it, such plants would not succeed so well as they would on an open wall. With a verandah only open at the front it is an easy matter to ward off exceptional visitations of cold by having strong blinds let down to enclose the openings similar to fruit-tree protections; such a verandah would then be equal to a cool house.—J. GROOM, *Linton.*

"Glengall" will find it much better to plant his conservatory climbers inside than have them in an outer border and bring their stems through the wall after the manner of Vines, for if

he plants outside the stems must be protected from frost, or the plants will never do well. Climbers of certain kinds do not require much border room, as the tighter in reason some of them are pinched at the roots, the freer they flower. Take *Tecoma jasminoides*, for instance, which, unrestrained, grows so strongly that it seldom blooms; whereas confined to a moderate-sized pot or tub, it never fails to yield clusters of blossoms. *Bougainvilleas*, again, always run too much to wood when their roots are not under control, but limit them to about a couple or so of square feet of soil and they become full of their richly coloured inflorescence. *Passifloras* and *Tacsonias* need more scope for feeding, but they will generally find their way under the floor of the house and its foundations and get out beyond them, and by so doing are well able to take care of themselves. As to what plants are most suitable to grow under the roof of a heavily shaded fernery, few would succeed properly, but with climbers there would be no need to shade heavily, as they would afford sufficient shade themselves for the Ferns. The best for the purpose are *Passifloras*, as being ornamental in their foliage they associate well with the Ferns; and another thing in their favour is their immunity from insects, from which they may be said always to be free. For the pillars of the verandah the following are as good as anything that can be had, viz., *Wistaria sinensis*, *Jasminum nudiflorum*, *Cydonia japonica*, *Clematis Jackmani*, *laureolosa*, and others, *Lonicera aurea reticulata*, and the *Virginian Creeper*. For the roof, *Passifloras* are the most suitable, the hardest being *P. corulea*, which would flower and fruit freely in such a position. Another good hardy climber is *Lardizabala biterata*, which has fine pleasing green foliage of very great substance. *Bignonia capreolata* and *grandiflora* would also succeed, and *B. radicans* would be suitable for the back wall, where *Magnolias* would also be quite at home. *Garrya elliptica* is a very ornamental shrub, bearing 8 in. to 10 in. long catkins, which, dangling in front of the silvery grey leaves, have a striking effect. *Banksian Roses*, so seldom seen good, would also do well against the wall; likewise *Ceanothus azureus* and *Escallonia macrantha*, the first named affording lovely feathery blossoms for cutting. S. D.

SHORT NOTES—INDOOR.

Pelargoniums.—I should be pleased to have the names of some new varieties of these which any of your correspondents can recommend.—B. Z.

Anthracite coal.—Can any readers of THE GARDEN tell me if this coal is a suitable material to burn in saddle boilers, and whether it is cheaper than coke for that purpose?—POXPADOUR.

Cyclamen blooms.—The blooms of nearly all my *Cyclamens* this year have been distorted. I shall be glad to know the reason, and how it can be avoided.—J. E. B., *Wurworth Grange, near Dartington.*

Stephanotis fruit.—Has any one fruited the *Stephanotis*? We have a plant of it here with one fruit on it about the size of a turkey's egg.—C. T. B., *Leiston Old Abbey, Saxmundham.* (It occasionally produces fruit in this country.)

Gardenias.—I should be glad to have some advice as to the treatment generally of these plants, especially with reference to soil, temperature, light, and whether the roots should be confined in a small pot or allowed to grow in a large one.—B. Z.

Myrtles in pots.—Will any of your correspondents give me their experience as regards flowering *Myrtles* in pots? I have tried both kinds, and also one-year-old plants and young plants, both in a heated Vinery and in a greenhouse, and I have never been successful in making them bloom.—J. H. G.

Climbers for roof of cold vinery.—In reply to "A. L." (p. 109), I should say plant *Maréchal Niel* *Roses*. This Rose is one of the best under glass roots, but not equal to some older kinds on open walls. An old vinery would need no preparation, as the border would be all ready for the plants, and the wires for training them. Get strong pot plants and pot at once. The *Maréchal* requires very little pruning.—J. GROOM, *Linton.*

ORCHIDS.

HARDY BRITISH ORCHIDS.

THE common and Spotted *Orchises* (*O. mascula* and *O. maculata*) are found plentifully here growing on different kinds of soil; but the finest specimens I have noticed are on strong, heavy loam. In peat and leaf-mould with the addition of a little lime I have grown a fine clump of the two just named combined, and last season they produced eleven spikes of bloom. Clumps of these sorts have a much finer effect than single specimens. The Meadow and Marsh *Orchises* (*O. Morio* and *O. latifolia*) I have frequently found, the latter generally in wet, marshy ground. The Man *Orchis* (*Aceras anthropophora*) is scarce, as is also *Habenaria albidia*. The common *Twayblade* (*Listera ovata*) and broad-leaved *Epipactis* (*E. latifolia*) are usually found in similar situations, viz., along the outskirts of shady woods. I have frequently seen the former over 18 in. in height, including the flower-stem. The Marsh *Epipactis* (*E. palustris*) is occasionally to be met with, but it seems confined to particular districts, a remark which also applies to *Lady's-tresses* (*Spiranthes autumnalis*).

In the cultivation of British Orchids, attention should be directed to the soil and circumstances under which they are found naturally—though that does not always ensure success, probably owing to our inability to produce the native air in which some of the species seem to delight. In transplanting them to the garden, it is best to remove the grassy surface from around the plants, and in my own case I have substituted fine Moss instead, usually that which is found growing on stones or old walls. This not only retains moisture, but also forms a very pretty carpeting. I have transplanted Orchids successfully in all stages of growth, even when in full flower, taking care, of course, to disturb the roots as little as possible, and to remove a good amount of turf along with them. I have not seen *Liparis Loeselii* or *Goodyera repens* in flower, but having fine healthy plants of them I will watch with interest their progress. The great Lizard *Orchis* (*O. hircina*) was said to have been found on the Great Orme's Head two years ago, but that statement has been disproved. I have not seen nor been able to procure either this species or the great Butterfly *Orchis* (*Habenaria chlorantha*). A. D. WEBSTER.

Penrhyn, North Wales.

Odontoglossum nævium majus.—The plant to which Professor Reichenbach has given this name is so similar to a moderately fine form of *O. gloriosum*, that none but experts would detect any difference. It is so distinct from the typical *O. nævium* that we fail to see the relation at all. It is, however, a handsome Orchid, and the variety Mr. Peacock brought us the other day from his garden at Sudbury House, Hammersmith, represents it in its best form.—W. G.

SHORT NOTES—ORCHIDS.

Odontoglossum (Erdstedt).—This Orchid is now in flower at Kew. It is a small growing plant of compact tufted habit, and bears flowers about 1 in. across on slender stems 3 in. or 4 in. high. The blossoms are white, of wax-like texture, and have only a few spots of chocolate-red in the centre.—W. G.

Odontoglossum crispum haveolium.—This is a remarkably distinct variety with respect to colour. The broad petals are of a uniform warm yellow, with the exception of a few spots of chocolate-red on the labellum. A good specimen of it has just flowered in Mr. Peacock's garden, Sudbury House, Hammersmith.

Newly imported Orchids.—Will some of your readers be so good as to give their experience with regard to newly imported Orchids, such as those bought at Stevens? What is the best mode of treatment? What proportion under ordinary care may be expected to die? and what proportion to bear comparatively inferior flowers?—F. P.

ORCHIDS AT OLDFIELD.

THE well-known collection of Orchids belonging to Mr. F. A. Philbrick, which till lately was located in the neighbourhood of the Regent's Park, is now at this place. It has long been famous for its Phalenopsis, a character which it still maintains, and at the present time these lovely Orchids are a gorgeous sight. Of P. Schilleriana, there are some wonderfully fine examples with long gracefully arching flower-stems branching out widely, and laden with a profusion of beautiful rosy pink blossoms. Among such a number of plants as are here there is of course great diversity both in form and colour, some having flowers much larger than those of others and deeper in tint. There is some diversity, too, as regards the manner in which the flowers are borne, some being in contracted spikes, while others are wide spreading, forming long pendulous panicles. The cool Orchid house just now presents a very bright appearance, numerous plants of Sophronitis grandiflora, Odontoglossum Rossi majus, and others being in full blossom. On the different plants of the Sophronitis there are some remarkably fine flowers, some being nearly 3 in. across and of the most vivid scarlet. Mr. Heims grows these plants for the most part in suspended pans, which evidently suits them well, judging by the healthy growth and profusion of flower with which they are laden. The plants of O. Rossi are the finest we have seen for a long time. They, too, are in suspended pans, a position which shows off their gracefully pendent spikes to advantage. Even among the plants of this species there may be discerned several very distinct forms. Some have much larger flowers than others, and with the markings on the petals more pronounced; others are suffused with purple, while others again differ in the colour of the crest which surmounts the labellum. In the majority it is of an orange-yellow, in others a delicate pale lemon-yellow, while in one plant here it is pure white. Other noteworthy Odontoglossums now well in bloom here are O. Cervantesi, O. Pescatorei, of which there is one with flowers over 2 in. across; O. crispum, cirrhosum, gloriosum, and others in great variety. One plant among the Odontoglossums above all others attracted us; it was a wonderfully fine form of O. triumphans with flowers 3 in. across, with very broad petals and sepals and a broad fringed lip. The colour consisted of a deep orange-yellow, on which were heavy blotches of reddish brown, the whole forming a very handsome flower.

Oncidium cucullatum is grown uncommonly well in this collection, as is evident by the superb examples of it now in bloom, the best being of the variety giganteum, which has considerably larger flowers than those of the others, borne on a tall branching spike. This Oncid is a very pretty one, and should be grown by everyone. It is grown here in company with cool Odontoglossums, such as O. crispum and others.

Among other noteworthy Orchids in flower in this collection were Ipea speciosa, a very pretty terrestrial kind, with large showy flowers of a clear bright yellow, borne on slender erect stems. It is grown here better than we have seen it elsewhere, and is really a desirable and attractive plant. Of the Lady's Slippers, Cypripedium hirsutissimum was the most conspicuous, and a handsome plant it is when in fine condition. In the same house Miltonia cuneata, the species with flowers having dark petals and sepals and a pure white lip, was an attractive feature; also Epidendrum Wallisi, a rare and handsome species when grown well. In the Cattleya house we noticed an uncommonly fine form of C. Trianae, one with broad pure white sepals and petals and an intensely deep amethyst lip and yellow throat. Of the Dendrobies,

the most attractive were D. nobile and crassinode, of which the variety Barberianum, with very rich colouring on the petals, is by far the finest. The pretty Angræcum citratum has spikes here 1 ft. or more long, and very graceful they are hanging over the rims of the suspended pans. Pescatorea Klabochorum, Compactia falcata, Cymbidium Lowianum, Oncidium cheiroporum, Calanthe Turneri, Ada aurantiaca, and Masdevallia bella were, among other noteworthy kinds, in flower.

W. G.



Orchis longibracteata. Drawn at Eastcott, Pinner, Feb., 1882.

ORCHIS LONGIBRACTEATA.

AMONGST the numerous hardy terrestrial Orchids in cultivation there are some strangely curious species, amongst which this South European kind is, perhaps, the most peculiar, both as to form and colour. As may be seen by the annexed

illustration, the lip of the flower is its most conspicuous portion, and this is a delicate purple, shading off to nearly white towards the centre, but flaked towards the margin with a much deeper purple, the edge itself being a bronzy green, which is also the colour of the smallhooded petals and sepals above the labellum—a singular mixture of tints. This remarkable plant has just flowered with Mr. Kingsmill, at Eastcott, near Pinner, in whose garden it succeeds perfectly under frame culture. But little appears to be known about this species. Perhaps those of our readers who have grown it will give ourselves and others the benefit of their experience. It is a native of Greece and islands in its vicinity, and is also known under the name of O. Robertiana.

NEOTTIA SPECIOSA.

ONE of the earliest introduced Orchids from the West Indies, and still a favourite in some gardens, is this handsome plant, which is sometimes known as Stenorrhynchus, an ugly and ill-to-be-remembered name. In the days when the giant beauties of our Orchid collections were allowed to "blush unseen and waste their fragrance on the desert air," the introduction of this Neottia caused a little sensation, and figures of it soon appeared in the botanical and other magazines of that period. Loddiges, judging from his 'Cabinet,' must have been in ecstasies about this plant. It is terrestrial, and has a mass of thick fleshy roots forming quite a nest at its base, hence the generic name. It is very easily managed, and may be grown by any one possessing a greenhouse in which there is a little warmth during the winter months. It flowers in January or February, producing a scape about 18 in. high, the upper half of which is covered with sheathing scales and tubular flowers of a rich red colour, changing to a paler tint with age. A strong plant will produce about half-a-dozen of these spikes, which last in perfection for at least five or six weeks. After flowering the plants should be rested in a cool house for a few weeks, and then potted in a mixture of loam and peat with a little charcoal. During the growing season a liberal supply of water should be given it. We grow our plants of this Neottia in the Cattleya house, where their bright green undulated foliage covered with a silky gloss helps to create variety. This plant may be readily multiplied by division, and being so easily grown might be had in quantity for furnishing cut flowers, which last almost as long in water as on the plant. Several other species, some with prettily marked foliage, are grown here and there in collections.

B.

To cure mossy lawns.—There are two causes why Moss grows too abundantly on lawns, viz., poverty and damp, and the particular cause should be ascertained before setting about the removal of the Moss, otherwise we shall be working in the dark. Assuming that the lawn, if wet, has been drained, the Moss can be scratched up with a short-toothed harrow drawn over the surface in opposite directions till the Moss has been loosened; then line the harrow with thorn spray and give the lawn a good scrubbing in various directions, till the Moss has been dragged up and removed. A small lawn might be worked with an iron rake and a hard birch broom. When the Moss is all removed, top-dress with $\frac{1}{4}$ in. of rich fine soil that can be relied upon to be free from weed seeds. The compost may contain a good proportion of charred refuse that has been sifted; wood ashes, or the refuse from charcoal heaps will also be very suitable. The thing to aim at is a close thick turf, and this will be obtained better by the use of dressings rich in phosphates than by giving ammoniacal manures, though the latter might be the right thing to do if we wanted heavy crops of Grass. The work should be set about at once, so as to get the whole into a nice condition for sowing a renovating mixture of Grass and Clover seeds

towards the end of March or beginning of April. A bushel per acre will not be too much to sow, as the birds will probably take some of the seeds. I am convinced that in laying down lawns few people use enough seeds. White Clover and yellow Trefoil alone without any Grass seeds may suffice in some cases. Where Moss is due to poverty in the soil, a good manuring will put it right; and it often happens that it is better to rely on a mixture of artificial manures than place entire dependence upon any one kind. At the same time what has been said about phosphates should be borne in mind.

—E. HOBDAV.

FLOWER GARDEN.

CROCUSES AND SNOWDROPS.

WE always think of these charming spring flowers together, for they are the earliest and hardiest of all our garden bulbs, and they never look so well as when growing side by side. They will thrive in almost any soil or situation, only let them be planted early and left undisturbed. Large clumps display the beauty of the flowers more effectively than thin lines, and the colours look better distinct than mixed. There is no end to the tasteful arrangements that can be made by alternate patches of different colours. Two inches should be left between the bulbs to allow room for growing. I once saw Crocuses and Snowdrops looking their very best planted in strong clumps 4 ft. or 5 ft. across masses of purple, yellow, and white. It was an old established garden, and the bulbs had been left undisturbed for years. This is the only way to grow them to perfection. It is well known that plants are continually made the objects of over-much attention, and that they are often killed by kindness. It has often been noticed that both Crocuses and Snowdrops produce far finer flowers when in a wild state than in gardens, besides increasing twice as fast; and this is just because they are left alone. There is nothing they so much dislike as being constantly dragged up by the roots every year to make way for bedding plants. Those who adopt this plan need not be surprised that their Crocuses and Snowdrops do not flower well.

PLANTING.—Another cause of failure is late planting. I cannot prevail upon my friends to put their bulbs into the ground early enough. It is well to remember that bulb planting begins, at the same time as partridge shooting, on September 1, and that by the end of the first week in that month it should be finished. Nothing weakens the bulb so much as being kept out of the ground. A very picturesque way of growing Crocuses and Snowdrops where it can be adopted is to plant them on a turf bank, for the bright little blossoms appear to the best possible advantage when seen springing out of the Grass as if wild. If planted carefully they need not be bought more than once, for with judicious treatment they will go on forever, increasing and spreading every year. The Snowdrop and the purple and white Crocus are both found wild in some parts of England, as well as all over the south of Europe, but the yellow Crocus is from the East. I remember a hill purple with wild Crocuses at Nottingham. Here and there a white one would be found, and these we considered the most beautiful, probably on account of their rarity. We were not allowed to dig them up for fear of disturbing the soil, but we sometimes succeeded in pulling one up by the roots by accident. The Saffron Crocus is also a native of England, and the town of Saffron-Walden, in Essex, was named from the little lilac autumn Crocus which was cultivated there. It is said that 4323 flowers were required to yield 1 lb. of saffron. I once had the Saffron Crocus in my

garden and thought it hardly worth growing, as the flowers come out without leaves, and the stalk falls flat on the ground soon after the bud opens. It looks pretty, however, arranged in water with the white Japanese Anemone, which is in blossom at the same time (October). The colour is a very delicate lilac, unlike that of any other flower.

SNOWDROPS.—In Suffolk and Worcestershire whole woods and orchards are carpeted with Snowdrops; they spread in grassy meadows far more rapidly than in gardens, and attain a larger size when growing in large masses. Nevertheless, it is believed that the Snowdrop is not indigenous to this country, but has been naturalised in gardens. The single Snowdrop has a great tendency to become double in cultivation, which is a pity, as the single forms are certainly the most graceful. The single Daffodil in the same way would generally become double in my garden sometimes the next year after being dug up wild from the fields.

VARIETIES OF CROCUS.—The yellow Crocus is of a deep pure orange colour, the brilliancy of which we were hardly aware of till we had it in our hands and looked closely into it. But there is a beautiful primrose-coloured Crocus (*Crocus sulphureus*), which is one of the most striking of all. Of white Crocuses, *Mont Blanc* is one of the largest and best. The Crocus is rich in purples, from the deepest violet to the fairest lilac, and the white with a violet stripe is exquisite. There is great amusement in raising Crocuses from seed sown in pots in spring; they come up like Grass, and are not very long before they are old enough to plant out. It is three years, however, before they flower. No plants are more suitable for growing in pots in a sitting-room than Crocuses and Snowdrops. I once saw a large pot containing a dozen deep purple Crocuses in full bloom surrounded by a ring of Snowdrops with their pure white bells, contrasting beautifully with the dark purple Crocuses which they almost touched. One would like to make a regular pet of the Crocus, and grow all the choice varieties in pots in the house. In this way a fascinating and extensive collection could be made. Those who have only seen Snowdrops in bunches in water, or arranged with Crocuses in Moss, have no idea of their capabilities for table decoration. Grouped with greenhouse flowers, they have quite a choice and uncommon expression, and resemble white Fuchsias hanging over the edge of the glass. I have seen most bridal-looking combinations consisting of Snowdrops and white Azaleas alternately, with white Crocuses and white Camellias placed all round the dinner table in small red glasses. Thus disposed on the white cloth by candle-light, the flowers looked as if they had all come out of the conservatory together, and our modest little favourites were fully able to compete with their more ambitious, though not more beautiful, rivals.

G. L.

GOLD-LACED POLYANTHUSES.

Addis's Kingfisher.—In my last notes on the old show Polyanthus I expressed an opinion that Kingfisher was not of Lancashire origin, as it had appeared so seldom in our annals. By the kindness of several correspondents I have now ascertained its history. Kingfisher was raised in 1847 by George Addis, late of Wolverhampton, from seed collected from an old variety (which is still in cultivation), "Sir Sidney Smith," by Mr. C. Box, assistant gardener at Himley Hall, in Staffordshire, the seat of Lord Ward. It was exhibited for the first time at the Handsworth and Loddles Floral and Horticultural Show, held at the Corn Exchange, Birmingham, April 30, 1851, where it attracted great notice, and was specially certificated. A coloured plate of it was afterwards pub-

lished. Mr. Thurstan, of Wolverhampton, who gave me this information, says the artist is still living, and that the illustration was a faithful representation of this grand flower. George Addis died about two years ago, but he had lost the plant many years before his decease. The records of the above society contain a description of Kingfisher, from which the following is taken: "This excellent red ground Polyanthus is exceedingly flat and round in the pip, with a short footstalk; the colours are pure, proportionate, and distinct, the eye round, and the lacing very correct. It is a noble trusser, with a strong, but not long, stem. In this locality it is justly esteemed, and in the hands of a careful grower must for a long time stand at the head of its class." Mr. Thurstan says it has been extinct for a great number of years, and that all his endeavours to trace it have been without success. The Rev. F. D. Horner was one of the last who possessed it, and on learning this from Mr. Brown, of Handsworth, I wrote to enquire if he still had it, but here again it has disappeared. Mr. Horner says that twelve years ago he had a large stock of it, but he lost it with many others one winter. He says it was a grand flower and a grand grower, and he recollects it as well as he knows his own face in the glass. Mr. Horner, moreover, does not believe in its existence, as such a treasure could scarcely have been so long hid. For all this, I still hold to the belief that this grand old flower survives, and will appear again very shortly, so we may look forward to a little excitement when this event does happen.

Brockhurst, Didsbury. WM. BROCKBANK.

HELLEBORES SINCE DECEMBER.

SURELY our interest in the Hellebores should be increased by the abundant and long continued way in which they have flowered this year. I have found, however, some species erratic in their times of flowering; for instance, in the same garden, but in different situations, the same species varied as much as a month in its time of flowering. According to my experience this genus of plants requires especial treatment as regards soil, position, and shade. About three years ago I planted a small collection in the following way, and the plants have both thriven and flowered well: A gentle slope to the south was altered by raising the then low end of the bed until it had a fall to the north of 1 in 5; three advantages were thus gained, viz., the force of the mid-day sun was somewhat checked, an extra depth of soil was obtained, and also a better form of surface for holding moisture. In adding the soil care was taken to have it of a good kind, viz., good rich loam about 18 in. deep, topped with 9 in. of the natural, but well enriched, garden soil. The position being immediately under a west fence 6 ft. high, shelter was secured from the strong winds, which would otherwise have wrenched and broken off the long-stemmed foliage of several species. At the proper time not only were the Hellebores, but also some young Walnut trees—2 feet high—planted, the object being to shelter the Hellebores from the summer sun, and the reasons why I selected Walnuts were because they shed their leaves on the first appearance of frost, when the Hellebores seem to most enjoy a little extra light. Moreover, the Walnut foliage being late in developing itself, a lengthened period of exposure is afforded. To prevent these nurse trees becoming too large, and their roots from robbing the Hellebores, it is only necessary to push a sharp spade partly under them, at longer or shorter intervals as may be determined on, and this is now the only attention my Hellebores require.

The following are still in flower, though nearly spent:—

H. BOCCONI *ANGUSTIFOLIUS*, over 1 ft. high, flowers pale green, small, but pleasing in form. They are produced in twos and threes on slender stems, springing from a bract-like arrangement of narrow leaves.

H. DUMETORUM, another small green flowered species, smaller in all its parts, is very beautiful when closely examined.

H. ABCHASICUS PURPUREUS is a strong grower, large in all its parts and very handsome. The flowers are produced in clusters on bold stems three times branched, after the style, but brighter than *H. orientalis*. The outside of the flowers, which are most seen from their drooping habit, are of a fresh light purple colour, the insides being richly shaded and spotted.

H. FETIDUS, so well known, is not only a fine evergreen sort, but at the present time its various shades of green, both in foliage and bloom, render it a fresh-looking object, either on rockwork or in borders, and I may add that my finest specimen is grown on dry rockwork fully exposed to the mid-day sun.

H. ANTIQUORUM is a strong grower, with fine spreading foliage. The flowers are distinct, cup-shaped, and drooping; their outside are ivory-white and veined with green, while inside they are white, more delicate, and peculiarly dotted at the bases of the petals with brown.

CLEOME PUNGENS.

THIS and the other cultivated species of *Cleome* are usually considered to be fit only for those who are fond of curiosities, or for some botanic garden, but when really well grown a few of them are by no means unattractive. Amongst these *C. pungens* is one of the best. It is a very old garden plant, having been grown for upwards of a century and a half. The flowers, which are crimson-purple, have purple thread-like stamens tipped with yellow, and borne in the manner indicated in the annexed illustration. It grows from 2 ft. to 4 ft. high, and forms an erect, much branched specimen with flower-heads which lengthen out to 1 ft. or 2 ft. It flowers from August to October. *C. rosea* is similar to the preceding, but is destitute of prickles. *C. spinosa*, a white-flowered kind, is also nearly allied to, but more delicate

described by Miss Owen in *THE GARDEN* two years ago. Plants of this prolific *Scolopendrium* came into my possession six years ago, and were distributed by me under the name of *Scolopendrium Baxteri*. Mr. Kelway bought three hundred. Mr. Ware, Tottenham; Messrs. Low, Clapton; Mr. Cocker, Aberdeen; Messrs. Backhouse, York; and all the Edinburgh nurserymen had plants of it before it was sent out by Messrs. Kelway. A plant of it was submitted to the Botanical Society, Edinburgh, the second year I had it for their opinion, and none of the members present had ever seen any *Scolopendrium* so prolific before. Mr. Lind, say, assistant curator Royal Botanic Garden, and Mr. Anderson, Edinburgh—the best cultivators of hardy Ferns in Scotland—pronounced it to be so nearly like *S. Coolingi* that it was deemed advisable not to send it out as a new variety. If, however, it is to have a name it should have Mr. Baxter's, and not Mr. Kelway's.—ROBERTSON MUNRO, *Abercorn Nursery, Pierhill, Edinburgh.*

THE RANUNCULUS.

THIS lovely flower has a strange fascination for me; it takes me back to the dawn of my taste for flowers, to days of boyhood, of freedom from thought or care, and to a place which I see often quoted in *THE GARDEN*. A schoolfellow had a relative who used to live close to us at Mount Anville, and I remember as distinctly as if it were yesterday going with him to see his garden. It was not large, but in it were two beds of *Ranunculus*. Have I ever seen the like since? I fancy not. Ah, well! some fifty years have passed since then, but the admiration which the beautiful sight of those beds created is as strong as ever, and I have tried in various ways and at different times to grow *Ranunculuses* with more or less success.

The Persian *Ranunculus* was for a number of years exclusively grown and varieties raised in Holland, and it was of these Dutch varieties that the beds I allude to were composed; but some forty years ago, perhaps, a Mr. Tyso who was a Nonconformist minister at Wallingford, and Mr. Lightbody, well known to all florists, a retired paymaster of the navy at Falkirk, began to raise seedlings and produced varieties, mostly of the spotted and edged varieties, which were in advance of the Dutch kinds, far more robust, and more free in flowering qualities. Those were the palmy days of florists' flowers. I remember the variety called *Talisman*, raised by Mr. Lightbody, being catalogued at thirty shillings, and Sir John de Gramme and others at half a guinea. The last published list of Mr. Lightbody's contained nearly 400 so-called varieties; but I need not say, where the range of colour was so limited (as they were not selfs), that many of them were varieties only in name. Mr. Tyso's last published catalogue, which I have now before me, contains about 150 kinds; and yet with all this but very scant encouragement has ever been given to them as exhibition flowers. I remember in years long gone by I used to obtain some of the Dutch varieties from a curious old character whom I once travelled down to Farnham to see, a Mr. Eyre, a grocer, who grew them well; they also found a place in Mr. Groom's well known nursery at Walworth. Mr. Tyso used to show boxes of them at the Botanic Society's exhibitions, and Mr. Hooper, of Bath, did the same. But there was little encouragement given in the way of prizes, and it was simply out of sheer love for the flower.

For many years after I left Ireland I was unable to grow them, and was contented with seeing them in other hands; but shortly after I came here, about fourteen years ago, I had a letter from dear old Lightbody to say that increasing infirmities compelled him to give up some of his pets, and that the *Ranunculus* must be one of them. He offered me his entire collection at a very moderate price. My brother and myself became the purchasers. We divided them between us, and I commenced afresh, determined to keep the varieties distinct. Imagine, then, my horror to find



Cleome pungens.

H. ANGUSTIFOLIUS, a variety of *H. niger*, has long, narrow, pale green foliage, indistinctly toothed. The distinct and dwarf species, *H. olympicus*, and the handsome *H. orientalis* I expect to see in flower soon, but I am not so confident that *H. atrorubens*, *H. graveolens*, *H. argutifolius*, or *H. purpureus* will produce flowers with me this season; but in reference to *H. argutifolius* I may say that even without flowers it seems so desirable, that no collection should be without it; it is the most distinct of all with which I am acquainted; the foliage, which is produced on a strong, round, shrubby stem, is very dark green, leathery, somewhat wrinkled, and of various forms, some entirely heart-shaped, others once and twice divided, but all deeply and sharply toothed, almost as much so as Holly.

Kirkstall.

J. WOOD.

than, *C. pungens*, which is by far the most striking, though another called *C. speciosissima* is likewise very showy. These are all half-hardy annuals, natives of South America and Mexico. They require to be sown in heat early in the spring, and the seedlings when potted off should be gradually hardened before being planted out in good, light soil in an open position in May. They require plenty of room in which to develop themselves, as they spread out and grow rapidly.

W. G.

History of *Scolopendrium Kelwayi*.—This Fern was raised from spores by Mr. Baxter, of Dalcolowie, near Glasgow, about ten years ago. He discovered that it was very prolific, and the method by which it could be propagated was

that one day an over-particular housemaid in cleaning the room turned the case topsy-turvy I did my best to remedy it, but after a few years, finding the labour too much, I mixed them, and have grown them thus since. About four years ago my two beds, 32 ft. by 4 ft., were a grand sight, but the last two winters have made sad havoc with them, and I am now reduced to one bed. I may say that I have more than once tried to obtain some of the old Dutch varieties, such as *Jaune Pompadour*, *Fête Nocturne*, *Condoreet*, &c., from Holland, but have failed always to obtain anything like them, while the names which appear in lists from Holland represent varieties unknown to older growers, and are, as far as my experience goes, of very inferior quality. I saw Mr. Barlow's stands at Manchester pretty where they were, but I did not admire the way in which they were shown (in bunches), neither was the quality such as I had been accustomed to see. I must apologise for all this personal matter, but if it does no harm it will at least show that in writing upon them I do not write of something of which I am ignorant, but that a life-long acquaintance with them qualifies me to do so with some degree of authority. There are some few points in cultivation which it is essential to observe in order to ensure success. The *Ranunculus* is a moisture-loving plant, and consequently a dry, light soil is not suitable for it, neither will it thrive when the soil is too heavy, and in consequence the drainage not good. A good, light garden soil suits it best, nor does it like fresh manure; therefore the beds should be manured in the autumn, the manure dug in, and then to be thrown up rough, so as to receive the benefit of frost, &c., during the winter. The planting is a matter of great nicety, as they must be planted at the depth of 1½ in.—if either deeper or shallower than this they do not succeed. In order to secure this my beds are boarded round, and I have a board with a notch 1½ in. deep cut in it, and with this the drills are made for the roots 5 in. apart. February 12 is the orthodox day for planting, but if the ground is in good order it may be done before that, and should the weather be unfavourable it may be deferred. In 1880 and 1881 I did not finish planting until March. Equally important with the planting is the taking up of the roots; if left too long in the ground they will commence to grow again, to the certain loss of the roots; while, of course, it is not well to take them up before they are fit. Some protection that will keep them longer in flower, and remain on after they have flowered, so as to save them from wet, is a very excellent plan to adopt; when they are taken up they should be gradually dried off and then stored away. There is one annoyance connected with them which it is difficult to obviate: worms are very troublesome by throwing the roots out of the ground, and hence, where they are grown by name, they are liable when planted again to be put in the wrong places; moreover, they are sometimes thus caught by frost.

I cannot give much advice as to obtaining new sorts. I think from a letter I had from Mr. Tyso's son, some time ago, that they are no longer grown at Wallingford. Mr. Hooper, of Bath, may have some varieties; and Mr. Barlow would probably be able to give information as to the quarter from whence he obtained his; but let me, as a florist, give a warning note as to those French varieties which one of your correspondents has spoken of. They are showy enough, but have no refinement about them, and showiness is not a term to apply to the refined and symmetrical *Ranunculus*. I can and do admire anything that is good in any way in a garden, but must adhere to the maxim that if you go in for florist's flowers you must adhere to the rules laid down for them, and aim at perfection in them. I admire a border *Auricula*, but I must look in a staged flower for that perfection of shape and colour which some few among them do attain to.

DELTA.

with the green tint of the leaves showing partially beneath it in some lights. Each of the innumerable hairs on the leaves was covered with minute dewdrops as if threaded on it. Beautiful as a good form of this plant is when in flower, it does not equal the beauty of its rosette of leaves when seen in this way. Somewhat the same effect is seen in sunshine after a white frost, but not so good as after a fog.—C. M. O.

Crested Hymenophyllum Wilsoni.

In reply to the note by Mr. Webster (p. 126) I may state that some years ago I found a form of *H. Wilsoni* similar to what he described in Ben Heister Glen, island of Arran. The specimens were given to Mr. P. Neill Fraser, of this city. Since then I have found the form in several places in the same island. I may remark in passing that I have seen individual fronds with traces of at least four years' growth. In September last I found the same form near Killin, Perthshire.—A. CRAIG-CHRISTIE, *Edinburgh*.

Scentsless Violets.—I notice "Sigma's" enquiry (p. 126) about these. The fact appears to be that the amount of odour given forth from many Violets seems very much an affair of weather. As a rule, Violets blooming in the open in winter are far less sweet than spring Violets. They seem to need more heat to develop fragrance than merely to form and unfold the blooms. March cold winds not only scatter the perfume of Violets so far and wide that no appreciable amount reaches our olfactory nerves, but they also check the formation and diffusion of perfume. The odour of Violets seems, in fact, as capricious as it is volatile. Not only do different varieties vary in their degrees of sweetness, but the same sorts vary with the season of the year, and the state of the atmosphere. A certain geniality of the latter and a temperature ranging from 50° to 55° seem to be the most favourable conditions for the development and diffusion of the scent of Violets. Those who force such sweet Violets as *Marie Louise* and *Queen Victoria* cannot have failed to note this winter the immense superiority of the forced flowers over those that have been gathered from the open air during this abnormally mild winter. But any excess of heat also speedily dissipates the sweetness of Violets. Gather a bunch under the direct blaze of the sun in April, and get another from a shady border of the self-same variety, and no one can fail to note the difference in favour of the latter. Finally, *The Czar* is by no means one of the sweetest Violets. *Victoria Regina* is far more so, and the *Neapolitan* and *Marie Louise* are sweeter than the double Russian.—D. T. FISHER.

SHORT NOTES—FLOWER.

Crocus vernus niveus.—This white form of the common *Crocus* is most charming, so pure in colour and good in form, though it is not large. It is not large things we want always so much, as quality of colour and form, and anyone with a stock of this *Crocus* could have a charming effect from it on the rock garden, or on some short grass, or springing among mossy plants.—V.

Broad-leaved Saxifrage.—Judging by a bunch of this from the College Gardens at Dublin, Mr. Burbridge must have it, as it ought to be, in bold, free-flowering groups, with handsome foliage. It is remarkable that plants so fine in form of leaf, so hardy, and so free flowering, should have been so much neglected as these have been. If only for the sake of the bold leaves carpeting an open garden or shrubbery, they are worth having.—J. H.

Grape Hyacinths.—It is pleasant to see the first delicate little peary buds of the *Grape Hyacinth*, hardy, of infinite loveliness of colour, and of much vigour for such small plants. Of these plants, the finer ones should be increased and made artists use of.—not in the botanic garden style, nor the ring, ribbon, or line of the ordinary garden, but in the common-sense and beautiful way of massing or grouping easily and without formality.—R.

Tritomates.—I see that Mons. G. Lebeuf, of Argenteuil, is offering in his list two plants, *Tritoma Saundersi* and *T. nobilis*, which I know nothing about. Will any of your readers tell me whether they are worth getting? He also speaks of *Rheum Collinum*, which is new to me.—J. E.

GARDEN FLORA.

PLATE CCCXXVII.—*BEGONIA SIOCOTRANA*.

WITH this interesting and truly beautiful *Begonia* we are not altogether unfamiliar, well grown plants of it having been seen in the Kew collection, and also exhibited by Messrs. Veitch, who possess the stock of it. Though not perhaps so showy as some of the tuberous-rooted hybrids now in cultivation, this species, considering that it blooms in the depth of winter, when the tuberous-rooted kinds are at rest, cannot fail to become a favourite on that account alone. It is a very free flowerer, dwarf and vigorous in habit, and its singularly shaped leaves, which measure almost 1 ft. in diameter, are very interesting and quite unique amongst *Begonias*. *B. siocotrana* has been described as a tuberous-rooted species, which it certainly is not, if by tuberous we mean the watery, Potato-like tuber which is formed by such kinds as *B. Veitchi*. Nothing of this kind exists at the base of *B. siocotrana*, nor are tubers of any kind borne by the plant. What are formed for its reproduction are certainly bulbs, a number of closely-set scales or suppressed leaves being arranged round an axis on which the bud is placed. These bulbs may be said to resemble the small bulbils which are produced in the leaf axils of *B. Martiana* and *B. gracilis*, which, however, are tuberous-rooted kinds. A well-grown plant of *B. siocotrana* will form from twelve to twenty bulbs at its base, each of which will produce a plant in the following year. For reasons to be explained presently it is important that this bulbous character should be borne in mind.

Great expectations exist with regard to the value of this *Begonia* for hybridising purposes, and there can be no doubt that no pains will be spared to make the most of it in this respect. Attempts have already been made to secure a cross, but, so far as I am aware, they have failed. It is extremely difficult to decide to what section of the genus this plant belongs, and until that is done hybridisation will be doubtful work. Many *Begonias* even refuse to intercross. The many beautiful tuberous-rooted kinds now in cultivation are all the progeny of tuberous-rooted parents, amongst which *B. boliviensis*, *B. Pearcei*, *B. Veitchi*, and *B. Frœbeli* are the chief sorts. These are all South American species, and, so far as I know, the whole of the large-flowered tuberous-rooted kinds are from New World plants exclusively. Mr. Laing, whose labours in crossing *Begonias* have been so well rewarded, informs me that although he has tried by various means to introduce some of the blood of the shrubby kinds into the tuberous section, he has never yet succeeded. The South American tuberous kinds, such as *B. natalensis*, *B. caffra*, *B. Richardsiana*, and *B. Sutherlandi* have also refused to cross with the South American species, though hybrids have been raised between them and some of the shrubby kinds. It will thus be seen that it is by no means certain that the *Siocotra* species will cross with our fine-flowering summer kinds, though such crosses would doubtless prove highly important in a gardening point of view. The introduction of *B. siocotrana* was the result of Dr. Balfour's visit to the island of *Siocotra* in 1880, and it is by no means the only valuable addition to our cultivated plants for which we are indebted to that visit. Botanically, the discovery of a *Begonia* in that part of the globe was a great surprise. Sir Joseph Hooker states that "Socotra was one of the last places in the world in which a *Begonia* could have been expected to occur." Mann, who was sent out from Kew in 1862 to botanise in Western Africa, discovered many interesting and several very



BEGONIA SOCOTRANA

beautiful kinds in that part of the world, one especially, *B. asplenifolia*, having, as the name denotes, foliage as pretty as that of some of the *Aspleniums*.

CULTURE AND POSITION.—The cultural requirements of *B. socotrana* are very simple. It is a stove plant, and thrives in a rich loamy soil. The bulbs should be potted singly in small pots about the end of July, and started in bottom-heat. Give more pot room as they require it, and as soon as the flower buds appear, which should be about the beginning of November, a little liquid manure may be administered. After flowering the plants may be placed on a shelf and kept dry until they start afresh. The annexed figure, having been taken from a weak specimen, hardly does this fine *Begonia* justice. When well grown and flowered it is an extremely handsome plant. B.

KITCHEN GARDEN.

FORCING ASPARAGUS OUT-OF-DOORS.

In selecting a position for the beds, it should be borne in mind that there attends this system of forcing *Asparagus* a certain degree of untidiness that cannot be avoided, because it is impossible to get large quantities of fermenting material together without making a litter while the work is going on. For this reason it is best to select a spot for the beds in some part of the garden to which it is convenient to get the material brought as near as possible by horse labour, and at the same time as far away from important points as circumstances will permit. The number and extent of the beds will depend upon the quantity of produce required; and here it had better be stated that *Asparagus* can not be forced in this way without frames. The frames which we use are like miniature span-roofed houses. They are 4 ft. wide and 12 ft. long, divided into four lights on each side. They are 18 in. high at the side, this height being in two parts (the bottom part being 10 in. high all round), which greatly facilitates the moving of the frames about. These frames, when not on the *Asparagus* beds, are available for many other purposes. Their height up to the angle of the span is 2 ft. 9 in. The width of the beds must of course be in proportion to the size of the frames; our beds are about 4 in. wider than the frames, which gives sufficient bearing for them. It is important to bear in mind that the beds should not be wider than this, because any excess of width means so much more earth for the heat to penetrate before it can reach the roots. It requires a strong heat to effectually penetrate a mass of earth some 2 ft. wide on each side.

THE PREPARATION OF THE BED must be in accordance with the nature of the soil. If the latter is of the right sort for *Asparagus*, it will only require a heavy dressing of manure; but it must be understood that *Asparagus* requires a rich deep soil, and where it is not so it must be suitably prepared. A light, sandy loam is doubtless as good soil as any for it; very often a light, thin staple may be made suitable by the addition of some good loam; in any case, manure must be used freely, and the best is either old hot-bed manure, or that from a farmyard that is sufficiently rotted to enable it to be mixed intimately with the soil. A surface-dressing only will not do; a good layer of the manure should be placed 1 ft. below the surface, and more mixed up with the soil; and where it is intended to plant the beds this season, the preparation should be done without farther delay, in order to give the soil time to settle down. A sufficient length or number of beds must be made to allow one portion to be at rest while the other is at work.

In other words, the same bed cannot be forced every year; there must be one season's growth allowed after forcing for the plants to recruit their strength. In our own case we have two long beds running parallel with each other; we force one end of each one year and the other end the next; and I like this plan better than having one long bed to deal with, as it brings the work into smaller compass. In commencing this system, the trenches need not be prepared until the time has arrived to commence forcing; if dug out now, they will require filling up again with something that will prevent the sun and wind from drying up the beds; and as it will take two years to get the roots strong enough for forcing, the trenches are not necessary till then. I may say now, however, that they must be 3 ft. wide and 2½ ft. deep on both sides of the beds. These trenches are for holding the fermenting material which is to supply the heat. Our trenches are simply dug out, leaving the sides to support themselves, and, ours being a heavy soil, this plan answers well; but I should much prefer to have the sides built up with bricks pigeon-hole fashion.

PLANTING.—The first week in April is the best time for planting, *i.e.*, when the plants have grown 1 in. or 2 in. long; they then rarely fail. In fact, it is better to discard any plants that are not then showing signs of growth. In a good soil the plants will be stronger at two years old than they will be in a poor soil at three years. If I had my choice, I would select two-year-old plants from a good garden; but if I knew that I must have them from a poor one, I would choose the three-year-old plants, because it is necessary to begin with good material; and then, after they have had two seasons' growth, there would be a better chance of the produce being satisfactory. For a bed 4 ft. wide three rows are necessary to produce a crop sufficient to give a fair return for the outlay. The plants should be spread out on the surface of the bed, and then covered over with 3 in. of fine rich soil; and if, after planting, the weather should prove dry, the soil must be kept moist about the roots by watering until they get well established. In June the surface should be mulched over with short grass, which will help to keep the soil more uniformly moist than when uncovered. The management of the beds is in no way different from that of ordinary beds that are not forced, except that the annual manuring in November must be liberal, as the plants require to be kept in a vigorous condition, and that cannot be done unless they are dressed every year with some good manure. The best way to apply it is to rake off the surface soil down to the roots, and lay the manure on them, replacing the soil on the top of the manure. Let us now assume that we have arrived at the time when the beds are ready for forcing, and that the trenches have been prepared. The first thing to decide is the time when forcing shall commence. Having had fifteen years' experience in this matter, I may say that I do not advocate very early forcing under this system. Not that it is not practicable as regards getting a crop; but when the plants are forced to come into use at Christmas or soon after that time, they suffer severely after the crop is secured, because they have to remain dormant till the temperature rises sufficiently to induce them to make another effort to grow; whereas, when forcing commences early in February—a plan I now adopt—the plants continue growing onwards without any check. Instead of forcing the permanent beds very early, I lift a bed of roots from the garden, and force them on a hotbed under glass for the earliest supply—a plan which has many advantages, not the least of which is saving the permanent beds.

FERMENTING MATERIAL.—To furnish the necessary heat the best material is fresh stable manure laid in a heap for a fortnight to ferment. It should be turned over once, and an equal quantity of tree leaves should be added to it. With this the trenches on each side should be filled up above the bottom of the frames, which should be put on before commencing to fill the trenches. A week afterwards another thick layer of manure and leaves should be applied, reaching nearly up to the glass, so as to almost bury the body of the frame; and as this sinks down fresh layers must be placed on the top to keep up the heat. The glass should be protected at night, and as soon as the *Asparagus* shows itself through the soil a very little air should be admitted on still mild days to give colour and flavour to the crop. I will not refer to the size and quantity of the *Asparagus* that we cut from our frames for fear that I should be charged with exaggerating, but I am certain that it would surprise many who have not seen this system practised. The after management is a very simple affair. When forcing commences in February the beds will continue to produce heads fit for the table for the space of two months, then cutting should cease. As the season advances the frames must have more air. By April 20 the lights should be removed altogether, and if the frames are wanted for other purposes they, too, may be removed, as the roots will not suffer if the beds are then left fully exposed.—J. C. C., in *Field*.

EARLY POTATOES.

NOTHING amongst vegetables perhaps is more prized and enjoyed than early Potatoes, to produce which a variety of schemes is resorted to; but after all there are none so simple and effectual as the manure bed, the heat from which costs little or nothing beyond the labour of carting and putting the manure together for the purpose of fermentation. The chief thing towards success is to have it sweet and free from noxious gases—a condition into which it may easily be got by collecting a good bulk together, and turning it over a few times before it is used. This will not only have the effect of bringing it into the condition referred to, but, by moderating the heat at first starting, make it more regular altogether; and when so prepared it lasts considerably longer, which is a great point in the making up of hot-beds, and one that should be thought of and considered much more than it is. What helps more than anything else towards keeping a steady heat is fresh-gathered leaves that have fallen from Oaks, which ferment less violently than manure, and are valuable for mixing with it in the proportion of about one-half; if this be done there need be no fear that a steady warmth will not be retained as long as may be needed for maturing the crop. Tan also is good, and nearly or quite equal to leaves, and is a material that almost anyone near a fellmonger's yard may obtain, as he is generally glad to get rid of it and give it away to all-comers. For the first or very early crop of Potatoes a frame is desirable, but for a later lot it may very well be done without, as all they require when the weather gets a little warmer is shelter from frost; and, if protected from its biting influence, the more air they get the better and more abundant will the produce be. Where many fall with Potatoes is in keeping them too close, which draws them up weakly, for though they will bear and enjoy artificial heat at the root they do not like much at the top, and that is why it is they often do so well without the aid of a frame. In the planting of Potatoes under the protection of this latter appliance they should have about 3 in. of light, rich soil, and be placed about 3 in. deep, 6 in. apart, and 1 ft. or 15 in. between the rows; as soon as planted Radishes may be sown broadcast over the soil and slightly covered, as these will be fit to pull and may be used before the Potatoes require the room and want earthing up. This can be done by adding another inch of fresh soil, and if watered immediately after the tubers

will swell rapidly, and be soon fit for digging. To grow Potatoes without a frame all that is necessary is to dig out a pit in the ground in a warm, sheltered spot, to hold the manure to afford bottom heat, and when they come up they can be easily protected with mats supported by a few rods to bear up the weight. For a still later lot, to come in before those in the open are fit, bottom heat is not requisite, and if covered at night they always pay well for the labour. The best sort for growing in either of the above-mentioned ways is Myatt's Prolific, which is a form of the old Ashleaf, but much harder, and, as its name implies, a most abundant bearer, besides which the quality is good. D.

CULTIVATION OF MUSHROOMS.

THE growth of this esculent is getting greater and greater every year. In most gardens there is a Mushroom house, or some place in which Mushrooms are grown, such as open sheds, cellars, and sometimes an empty stable stall, in which I have often seen fine crops. Failures arise from faulty spawn, but oftener from badly prepared manure, which is often rendered useless by being too much dried before the bed is made up. Mushrooms may be grown satisfactorily in any structure, whether it be a properly constructed Mushroom house or a shed, provided a proper temperature can be maintained, and plenty of atmospheric moisture. Mushroom houses are often lean-to's against north walls and they should be, if possible, close to one of the forcing house boilers, and connected therewith, an arrangement which will save both fuel and labour. If not convenient to be so connected, the house must be treated in some other way in order to ensure a crop of Mushrooms in midwinter, or when we have severe frost and cold winds. If pipes for the Mushroom house be connected with a boiler at work, a valve in both flow and return pipes will be required to shut off the hot water when not needed. The quantity of pipes required will depend upon the size of the house, always preferring 4-in. ones to those that are smaller. If the house is wide enough it is best to have a path in the centre, sufficiently large to admit a wheelbarrow loaded with manure for making the beds. The beds may be arranged on both sides of the path—first a bottom bed, and then a second one over that, and where there is height there may even be a third bed upon one side of the house, but two are more convenient to work. The wall for the bottom bed, a 9-in. brick one, must be 2 ft. high, and there must be piers from 3 ft. to 4 ft. high to support the top bed, which may consist of large slates laid from pier to pier to form the bottom, the side being 18 in. deep. The latter may be either made of slates, fixed with iron rods and bolts, or built of bricks. The framework for the beds in some places is made of wood, in others of iron, which is the most durable. I have not used iron supports myself, but I have been told by those who have them in use that if Sea-kale or Endive be forced near them, the moisture collected upon the iron bars, if allowed to drip upon the forced vegetables, discolours them and renders them useless. If kept painted no injury to such vegetables occurs.

Suppose we commence Mushroom growing early in the autumn, fresh manure from the stables where the horses are fed upon hard food must be collected, shaking it up with a fork, in order to take some of the roughest portions out of it, but some straw may be left. What is selected for the bed should be put into an open shed to keep it dry, and turned over several times to prevent it from overheating. Sometimes, if left untanned for a time, it gets dry and mouldy; it should then be sprinkled with water through a fine-rosed watering pot, being careful not to make it too wet, or it will not heat satisfactorily. When sufficient has been collected to form a bed, if deficient in heat through lying in the shed, add some warm manure to it, such as is used for making Cucumber and Melon beds; if this put from 9 in. to 12 in. deep in the bottom of the bed, and having made it firm, put

the other prepared manure from the shed over it in thin layers, treading or beating it down with wooden mallets until it is 18 in. deep, or 2 ft. deep will not be too much for a bottom bed, as the crop generally lasts longer when the bed is deep enough to retain the heat for some length of time. If the manure is dry when the bed is being formed, sprinkle a little water over it through a fine-rosed watering-pot.

When the heat has declined to 70° or 75°, which can be ascertained by thrusting a stick into the bed, it may be spawned, breaking the cakes of spawn into pieces about 2 in. square, and putting them into the bed about from 6 in. to 9 in. apart and about 1 in. deep; cover with the manure and tread down firmly. Then add a coating of good loam to the depth of 2 in., beating it firm with the back of a spade. In the course of six or eight weeks the Mushrooms may begin to appear, but sometimes it is ten weeks before any Mushrooms are fit to pick, and a bed thus late in bearing often lasts longer than if it bore earlier. Beds generally last in bearing from three to four months. A temperature of from 60° to 65° is the best for maintaining a good supply, but Mushrooms can be grown at a lower temperature, say from 50 to 55°.

The top bed should be made in the same way as the bottom one, and it is best, as a rule to make it first, as the hot manure used for the bottom one heats that in the top and makes the spawn run. The soil upon the top of the beds must not be allowed to get dry at any time or the spawn will not run freely, and it must be watered with water about the warmth of new milk. Syringe the walls of the house once every day to keep the atmosphere moist, and the pipes may be sprinkled at the same time. If there are no hot-water pipes, in one end of the house have a heap of warm manure, which will give off sufficient heat for a great length of time, and when that is getting cold have another ready to take its place. It can afterwards be used to make a new bed or dug into the ground.

Mushrooms may be grown underneath the stages of stoves or intermediate houses, or, as I have said in cellars where there is sufficient heat in winter to bring them to perfection. They may be grown in open sheds facing the north during the summer months. Make the beds 3 ft. high at the back wall, sloping down in front to 12 in., which leaves a large surface for the crop to grow on. This must be spawned and covered with soil as just directed, covering with some loose straw to keep the surface moist until the bed comes into bearing, a condition in which it will last from five to six months. Beds are sometimes made in the open air by market growers, who pick quantities of fine Mushrooms from them. They, however, require to be deeper than those indoors. I have grown fine crops of Mushrooms in wooden frames having close fitting shutters. The beds should be kept cool in summer and warm in winter, by having an outer frame 18 in. larger all round than that inside packed with straw or sawdust if procurable. The latter lasts a long time packed firmly between the frames. The top must be covered with straw mats, which, if made with strong twine, last a long time; or straw may be packed between hurdles so as to keep the beds warm enough to produce fine crops during the spring and summer months, and these generally of first-rate quality. The straw mats or hurdles also keep the beds cool in summer if sprinkled with water in hot weather. The beds should be made in the usual way about 2 ft. deep. The first bed for the autumn crop in the Mushroom house must be made early in August to come into bearing about the end of September. It will then succeed the crops in the open sheds; or if beds be formed out-of-doors, new beds must be made to succeed each other during the winter, supposing each bed to last three months. The beds in the open sheds may be made in April or May. These will produce crops during summer. The soil, when taken off the top of the old beds, may be spread on some meadow or Grass field, when a crop of Mushrooms will probably be the result, even where

they were never known to grow before. This I have proved on several occasions.

WM. CHRISTISON.

The Rookery, Bromley Common.

Vegetables for shady places (p. 138).

—Few vegetables will do much good in shady ground overhanging with Laurels. Why not cut some of the latter away and let the light in? If freed from slugs by the lime dressing, one might, however, grow Cabbages, Cauliflowers, Scotch Kale, or Spinach in such a position as well as crisp Lettuces, and when it is warmer Radishes. Rich soil in shady places may also grow good Celery.—D. T. FISH.

Potatoes in leaf-mould.—We had a remarkably good and clean yield of Veitch's Ashleaf from a rather stiff piece of ground last season planted in leaf-mould. When the previous crop (Parsnips) was cleared off, the mould was wheeled on in a ridge down the middle, and the ground dug and planted at the same time. The trenches were cut in front of the line, and a good thickness of the leaf-mould strewn in the bottom of each, upon which the sets were planted. The young tubers turned out in fine condition, and quite free from disease.—A. M. C.

Flies in Mushroom houses.—"J. D." (p. 116) may destroy these by watering the bed after it is firmly trodden down and before it is spawned with boiling water. I have used this for a similar purpose upon several occasions, and without any ill effects as regards either the manure or the Mushrooms. Some people fumigate the house with Tobacco, but that is not so effectual as the boiling water. Mushrooms are made brown on the top by using water colder than the temperature of the house, or by watering when the surface of the bed is very dry and dusty.—WM. CHRISTISON.

Cropping building land.—As the ground referred to (p. 138) has been used for garden crops the chances are it is Potato-sick; otherwise few crops would pay better were a judicious selection made. Early Peas, to be succeeded by other crops, would probably do as well as anything. These might be cleared off in time for a crop of dwarf French or Runner Beans, Cauli flowers, Coleworts, Broccoli, or Turnips, or the lightest part of the ground could be cropped with Turnips, Radishes, and Carrots, and the heavier with Onions and Parsnips. It would be well to enquire what crops would pay best in that neighbourhood, and also to observe which thrives best and select accordingly. There is time enough to get one or two good crops off the land within the twelvemonth included between March, 1882 and 1883. Potatoes and Beans would prove the most profitable.—D. T. F.

—The acre of land in question should have a dressing of manure; it should then be deeply dug, and Veitch's Perfection, Premier, or some other good dwarf Marrow Pea should be sown on it in rows 3 ft. apart. There should also be made at once in some warm sheltered corner a sowing of Veitch's Autumn Giant Cauliflower, and when the young plants are strong enough they should be planted out in rows between the Peas, each plant being 18 in. from the other. When the Peas are gathered care must be taken that the Cauliflower plants be not injured; there will thus be two very profitable crops, one in July, the other in October. The soil would be quite rich enough to carry a good crop of Potatoes the following year.—A. D.

Planting Potatoes on manure.—I should be pleased if some Potato growers amongst the readers of THE GARDEN who have not yet tried planting sets upon long manure in furrows would do so. As a rule, in good gardens the soil is rich enough to produce good crops of Potatoes without the addition of manure, but it is a too common rule none the less to work in a liberal dressing, not merely with the view of producing a big crop of tubers, but also for the benefit of the succeeding crop. If the manure were given fresh to the other

crop, and the Potatoes made the unmanured succession, no doubt it would be better for them; but in planting tubers over the dressing of long manure the object is not so much to stimulate growth, although that of course results to some extent, as to furnish a dry, warm bottom and needful drainage. When Potatoes are lifted soon after rain it is found that the roots are always apparently wetter than the surrounding soil. As the tubers swell they press the soil about them somewhat into the form of a basin, and when rain comes it is longer in passing through the walls of this basin than through the soil adjoining. If, however, there be put under the roots a layer of long manure, that will keep open the lower side of the basin and allow the moisture to percolate freely away, the tubers will at any time lift dry and clean. I have found the very best results follow from this plan. Just now I am getting a large breadth of ground thrown up into 3-ft. ridges, and directly in the furrows shall be laid a dressing of long manure; this will be dug in. A shallow drill will be drawn down the centre of the furrow with a hoe, and the sets will be laid in the drill, and, of course, immediately upon the manure. The ridges on either side will then be partially forked over the sets, and when convenient will be further forked over to leave them in a loose state ready for earthing up, which also is done with the fork, the best implement in good Potato culture.—A. D.

Succession Peas in small gardens.—A cottager to whom I occasionally gave seeds drew my attention the other day to a system that I consider worth the notice of those similarly situated. His plot is small comparatively, as most gardens are; so in order to have a constant succession of Peas he manures the space intended heavily in November, and sows an early kind, say some of the numerous round varieties—as being the hardest—1 in. asunder. Then a month later he dibbles in Challenger in the same row, and at present he is dibbling in Strategem. The one manuring and the one row of stakes is sufficient; time and labour is saved, and the three different varieties come in for use one after the other. This is worth the notice, when properly done, of small suburban garden occupiers.—W. J. M., Clonmel.

Cauliflowers in threemonths.—I should like to ask your readers, who have thought over the matter, whether they find in practice there is much gained by keeping Cauliflower plants over the winter in frames, often at great inconvenience, when they can sow the seed in a hotbed as early in January or February as they choose, gradually harden off, and transplant, until fit for transplanting finally in a warm border in March? Then, under favourable circumstances, a good early variety will be fit for use towards the end of May or onwards. This avoids all the risk of preserving over the winter, liberates the frames for other purposes, and, above all, stops that general tendency to run to seed and “button”—and disappointment. Besides, Cauliflowers from young seed, grown on, are far superior. At least that is my experience, confirmed from all I can learn. I have Carter's Early Defiance Cauliflower now fit for transplanting in boxes that will beat old plants already in the ground. It is the earliest Cauliflower I know.—W. J. M.

Late Broccoli.—Several severe winters having cut off Broccoli, both early and late, especially where luxuriant in growth, we last season took the precaution to plant later in poor, hard soil, so that the growth should be firm and woody. Thus far, however, the winter has been exactly the opposite of those referred to. Still, I would always recommend that for the latest crop of Broccoli the manure should be put on and forked in between the rows as soon as all danger from severe frost is over, or any time in February, for in order to have really good Cauliflowers or Broccoli good rich soil is required, so that the heads may be tender and succulent. Carter's Champion, Cattell's Eclipse, and other late sorts need not be very large plants at this time and yet produce good heads in April and May and the first part of June. We shall take

short, rotten manure and spread it between the rows, and then work it into the soil with a prong-hoe, or lightly fork it in. The roots will soon find it, and as the days lengthen growth will be rapid. Any one desirous of putting the beneficial effects of rich top-dressings to the test may easily do so by dressing a few rows and leaving some side by side undressed. Broccoli and the Brassica tribe generally are gross feeders, and if there is any good food within reach of their roots they will be sure to find it; the more luxuriantly they grow the more tender will they be, not only under the influence of frost, but, what is more desirable, when cooked.—J. G., Linton.

Long Leeks.—“W. P.” enquires (p. 138) where these can be had in quantity for market. The answer is around Musselburgh and Leith, in Scotland, and I presume also in Yorkshire, most of the northern and border counties, and Wales. It is somewhat singular that the majority of private growers and growers for market will not give themselves the trouble to lengthen their Leeks. It is mostly a matter of culture, as was pointed out in THE GARDEN some years since. No doubt, too, something depends on strain, as pointed out by Mr. Thomson, of Kelso, in THE GARDEN last week. As to hardness, all Leeks that ever I have seen are especially so, though the giant Leeks are more liable to injury from excessive wet and sudden thawings and freezings than smaller ones. But Leeks in anything like their normal state are absolutely weather-proof. Treat Leeks like Celery as near as may be, and they may be grown to almost any size. Some add to the length of the stems, that are the only edible parts, by dropping the plants into holes from 6 in. to 9 in. in depth. But there are few better modes of proceeding than planting them in sheltered trenches, bottomed with rich manure—that of cows or pigs being the best. See that they never once suffer from drought, and that they are frequently soaked with sewage or other manure water. As they approach maturity they may be earthed up something in the way of Celery if they have not reached sufficient length nor become sufficiently white without it.—D. T. FISH.

Early Cauliflowers.—This is a good time, to plant out in open quarters the main crop of autumn-sown Cauliflowers; in fact, around London large breadths of them are already out. The fine, open weather of the past winter has been exceptionally favourable for early growth, and when wintered under bell or hand-glasses, Cauliflowers are now fine plants, quite as forward as in many seasons they are in April. The system most in vogue just now, however, is growing them in pots as in that way they do not experience any check when transplanted to the open ground, and if a fortnight's advance can be secured in the crop, it makes all the difference between profit and loss. The Cauliflower crop is one liable to great fluctuations in value in a very short time, and all know how liable it is to come in all at once if treated according to the ordinary system of transplanting from frames. I would therefore strongly urge the pot system for a few of the earliest to succeed those grown nearly entirely under glass. In market gardens the pots are set as thickly as they will stand in shallow frames; they are filled with rich, light soil, sifted fine, and one plant is put into each pot. They are fully exposed to the weather on all favourable occasions, but securely covered with litter on the first sign of frost. If planted on very rich, deeply cultivated soil, and sheltered with Fir branches should cutting winds prevail, or planted in shallow trenches, they will be found to well repay these attentions by coming in directly the supply of late Broccoli begins to fail, early in June.—J. G., Linton.

White Improved Sprouting Broccoli.—This is one of the most useful Broccolies grown here. It is of a good white colour, and has been truly described as possessing all the good qualities of that excellent variety the Purple Sprouting. We are now cutting from it beautiful centre heads the size of small Cocoa-nuts, and excellent in flavour.—THOS. OLDFHAM, Friern Watch, Finchley.

TREES AND SHRUBS.

SELECT SHRUBBY SPIRÆAS.

The Spiræas are remarkable for their floriferousness and the beauty of their blossoms, which, from early spring to autumn, contribute greatly towards the floral embellishment of our gardens. Although they will grow and flower well in almost any situation, it is only when in a good holding and rather moist soil, well exposed to the sun, that their beauty becomes fully developed. Most of them seed abundantly, but it is not necessary to propagate them in that way, as they produce suckers freely, which may be detached without difficulty in winter, with a few roots adhering to them, and which, with ordinary care, will make good plants. The following will be found to be a good selection, viz.:—

S. ARLEFOLIA.—This attains a height of 8 ft. or 10 ft. It is a kind often met with, but mostly in shrubby thickets, while to show off its beauty to advantage it requires an open position. When isolated it forms a large bush of regular outline, densely laden during summer with fine plume-like panicles of whitish flowers.

S. BELLA.—This has a neat, compact, but by no means dumpy, habit, while its flowers,



Spiræa chamaedrifolia.

which are borne in great profusion, are arranged in comparatively large corymbs of a deep rose colour. It is a native of Nepaul, and perfectly hardy.

S. CALLOSA, or FORTUNEI, bears deep rose-coloured flowers arranged in corymbs, and blooms almost continuously throughout the summer. It is upright in habit, and even when not in blossom is attractive, owing to the young leaves and shoots being red, which, when lit up by the declining rays of the sun, has a very pretty effect. It is a native of Japan. There is a white variety of this species which is much dwarfier in habit than the type. It forms a dense shrub of about 2 ft. in height, and flowers earlier than the species.

S. CHAMÉDRIFOLIA, of which the annexed is an illustration, is a very widely distributed kind, being found throughout the northern parts of Asia and America. It is a dense twiggy bush, studded during June or July with corymbs of white flowers, which are very ornamental.

S. CONFUSA, the shoots of which are terminated by dense flower-spikes often 1 ft. or more in length, and white in colour, slightly tinged with green, is a plant of very free growth, and one which, even during winter, may be distinguished by the fastigiate arrangement of its branches.

S. DOUGLASSI.—This is an erect-growing kind, the young leaves and shoots of which are pubes-

cent, and the flowers, which are pink, are borne in long upright panicles.

S. LINDLEYANA.—This forms a large, pyramidal, handsome shrub, clothed to the ground with pinnate foliage, and towards the end of summer each shoot is terminated with a large feathery plume of white flowers. It is a native of Nepal, and sometimes gets a little injured by frost in winter, but quickly recovers.

S. LEVIGATA is another distinct kind, and one that, when out of flower, would at first sight scarcely be taken for a Spiræa, its dark green, firm, glabrous leaves resembling more those of a *Daphne*. It acquires a bush-like shape, but does not produce suckers, and therefore its propagation is somewhat more difficult than that of some of the others. It may, however, be effected by means of layers. It is a native of Siberia, and a plant that should be grown, not only on account of the singularity of its growth and foliage, but for its slightly tinted white flowers, which are very pretty.

S. NOBLEANA.—This is said to be a hybrid between *S. Douglasii* and *callosa*, and possibly it is, as its flowers seem to be intermediate between those of its supposed parents. On the other hand, wild specimens sent home by Lobb from California agree with it in every respect. Whatever its origin may be, however, there can be but one opinion of its value as a fine summer-flowering shrub.

S. OPULIFOLIA.—Amongst Spiræas this is one of the strongest growers, attaining, as it does, a height of 10 ft. or 12 ft. It produces pure white flowers in large dense corymbs, which, together with the leaves, bear some resemblance to the Guelder Rose. It is a native of North America, but has been cultivated in this country for nearly 200 years. There is a golden-leaved variety of it which in spring is very bright, but as the season advances it becomes more like the normal type.

S. SALICIFOLIA.—This is a widely distributed and very variable kind, differing greatly in size, and also in the colour of the flowers, which vary from deep pink to white, and are borne in light feathery spikes during July or August. Some of the forms are as much as 6 ft. in height, while others are but creeping shrubs.

S. THUNBERGI forms a slender-growing shrub, small in all its parts, but with gracefully arching branches. The flowers resemble those of the Hawthorn, but are much smaller, and clothe the whole length of the shoots. A great point is their earliness; they expand with the first return of spring, and on this account the plant is often forced, treatment to which it readily submits; indeed, with very little assistance it may be had in flower at any time during the winter.

S. TRILOBATA.—In addition to being showy this is an interesting kind, owing to its trilobed and glaucous leaves. It is dwarf and twiggly, and its pure white flowers are borne in comparatively large corymbs, and in great profusion in May.

DOUBLE FLOWERED KINDS.—These are *S. prunifolia* fl.-pl. and *S. Reevesiana* fl.-pl., the former one of the earliest to bloom, being often in flower by the end of March, and very pretty its little rosettes of pure white flowers are when fully expanded. The second flowers later, but is equally pretty. Both produce long, slender, arching shoots studded with blossoms—indeed, quite floral wreaths. ACPHA.

FALSE ACACIA AND ITS VARIETIES.

The False Acacia (*Robinia Pseudacacia*), being different in general appearance from other trees, always commands attention, especially when laden with its drooping racemes of sweet-scented white flowers. That condition is, however, only of short duration, as the blossoms soon drop. Its peculiarly coloured furrowed bark when old, and its light, airy, pinnate leaves render it a favourite in dressed ground, and even for street planting the varieties *Bessoniana*, *Decaisneana*, and others are sometimes employed. Its ornamental properties are not, however, the only points in its favour; its timber is of first-rate quality, and the long creeping roots,

though troublesome in some situations from their habit of throwing up suckers, and from their close proximity to the surface, are of great service in fixing shifting soils, especially on the sides of cuttings and similar places. As might be expected in the case of a plant so long introduced and so extensively propagated from seed, there are now a great many well marked and distinct varieties, of which the following are well worthy of notice: The golden-leaved kind (*aura*) is a form in which the leaves are, on their first appearance, of a beautiful golden hue, but they become somewhat greener as the season advances. When in good condition it is very bright and effective and of much slighter growth than the type.

A handsome kind called *Bessoniana* is that most suitable for street planting. It is of quick growth, and forms a highly ornamental compact growing tree, the foliage of which is large and bold, and the branches destitute of spines. In crisp leaflets are curled, giving it a curious and distinct, but by no means an ornamental ap-

pearance. The branches of this variety are also spineless. As a rapid grower, the variety *Debinias*, and in another point it differs greatly from *caisneana* is unapproached by any of the other *Robinias*, viz., in the colour of the flowers, which are pink instead of white. One of the most strongly marked kinds is the upright *Acacia* (*fastigiata*), a tree quite as erect in growth as the Lombardy Poplar, while another form (*pyramidalis*) is in habit about intermediate between it and the common kind. The small-leaved sort (*microphylla*) forms a pretty miniature tree of slight, but by no means stunted growth. *Monophylla*, another variety, derives its name from the fact of the leaflets being blended into one, as in the case of the one-leaved Ash, thus presenting a curious appearance, but still very ornamental, the growth being free, and the tree forming a well balanced head. *Sophoræfolia* has very dark green leaves, which bear a great resemblance to those of the *Sophora japonica*. A peculiar form is the twisted *Acacia* (*tortuosa*), the branches of which are crowded together and full of abrupt twistings and turnings. This peculiarity is more noticeable in winter

SWEET BAYS.

The Sweet Bay (*Laurus nobilis*) is well known as a strong-growing tree-like shrub, a native of Asia, but cultivated now over the greater part of Southern Europe and the more temperate parts of the north. It forms a vigorous shrub with arching branches, smooth twigs, and short-stalked leathery leaves, which are highly aromatic. The flower is of a yellowish white colour, the fruit an oval, cherry-like berry of a blue-black tint. This Bay, in the form of round-headed standards and



Flowering spray of False Acacia (*Robinia Pseudacacia*).

pyramids of various dimensions, is largely used for the embellishment of villa gardens, terraces, and other formal arrangements. The trade with the Belgian and French houses in Sweet Bays in these shapes has of late years acquired great importance, but the first cost, together with transit and agency expenses, makes them exceedingly dear, thereby rendering them accessible to the wealthy only. The Belgians were the first who grew them in large quantities for export, being greatly assisted in that respect by their favourable climate. Ours is, however, equally favourable, and therefore we ought to grow such trees ourselves.

Pyramids.—When it is desired to have a standard, pyramid, or any form requiring a stem it is essential to raise the plants from seed. Plants from cuttings or suckers are by no means to be recommended, and any attempt made with such will end in failure. The seed comes chiefly from Italy and the countries bordering the Adriatic, and should be easily obtained. Like all oily seeds, those of the Bay lose their vitality in a comparatively short period after being gathered; therefore

no time should be lost in sowing them. New seed sown in autumn will come up in spring, or if sown in the early part of the year in about two or three months. A cold pit or frost-proof frame is the most suitable place for it, the young plants being more vigorous under cold treatment than warm. When they are 2 in. in height they may be potted off singly to be planted out in a place where they can be protected with a frame in winter, or they may be pricked out in good loamy soil at once and kept close till well rooted. They will grow strongly the first year, and must be allowed to grow unpruned. The growth will, however, be stronger the second year, and it will then be possible to distinguish those that will be most suitable owing to their branch arrangements to form pyramids, which must then be assisted by the knife to assume the proper form.

Standards.—In autumn those intended for this purpose must have their stem bent close to the soil, and be securely fastened there with a stout wooden hook, taking care not to fracture the rind. By the spring two strong buds will have formed at the base of the stem, and, owing to the husbanding of the sap by the bending process, they will grow very strongly. The weaker must be removed as soon as distinguishable, and the other allowed to grow on. By the end of the summer it will have reached the standard height, and have a thickness at the base of $\frac{3}{4}$ in. The two-year-old bent-down stem must be cut off as soon as the bud left at its base has made a good start. Herewith the work of standarding becomes complete. The formation of the head will depend in all cases on the amount of skill brought to bear on the after operations of pruning and arranging the branches. Six or eight years will be required to grow a well balanced, saleable specimen of either form.

SYLVESTRIS.

SEASONABLE WORK.

FLOWER GARDEN.

W. FLOWERSMITH, HECKFIELD.

Briza maxima and media.—Though seldom used in that way, some of the ornamental Grasses produce the most pleasing effects when associated with herbaceous perennials, and amongst these none are better for the purpose than the two varieties just named. Their habit is erect, yet graceful, growing as they do from 15 in. to 18 in. in height; the spikes of flower are about 3 in. long and purplish green in colour. The constant nodding of the florets, even in the calmest weather, is delightful, and it is owing to this characteristic that they are usually called Quaking Grasses. Their culture is of the simplest kind; they are not particular as to soil, and are readily increased by division or seeds; seedlings are best. Sow the first week in April where the plants are to grow permanently, and thin out the seedlings as soon as they can be handled to 6 in. apart. The flowers are valuable, in a dry state, for table decoration and vases in winter. If only for this purpose they are worthy of cultivation, but doubtless their most appropriate positions are as occasional "dot" plants in large borders of herbaceous plants, and as large masses by the sides of woodland walks and drives.

Transplanting shrubs.—That flower beds may be afforded the necessary cultivation preparatory to the summer planting, it is now time that the shrubs and other hardy plants with which they have been filled in winter should be transferred to their summer quarters. If planted later than this the probability is they might suffer from drought ere the plants had got established in the soil, but to guard against the possibility of such a check, it is our invariable practice to mulch with bracken as soon as they are in their places, and for neatness sake the mulching is removed after there has been a long spell of showery weather to start the roots into active growth. Small plants of some few kinds of shrubs we use in summer as "dot"

plants in foliage beds, and these, as a matter of course, when they can be made to fit in with the summer arrangements, are not transplanted at all. In order to better illustrate what I mean, I may say that we have here a border consisting of oblong panels and circles alternately. In winter the oblong panels have had as a centre small bushy plants of *Retinospora pisifera aurea*, and the circles, small plants of *Cupressus Lawsoniana erecta viridis*. The winter ground-work of the oblongs was Heather, and that of the circles *Sedum glaucum*. All these shrubs will remain for the summer; the ground-work for the *Retinosporas* will either be *Alternanthera* or *Ajuga reptans purpurea*, and that for circles, *Mesembryanthemum cordifolium variegatum*. By thus endeavouring to retain all the plants possible that have done duty during winter, not only is the work lessened both as to labour of planting and propagation, but an effective and uncommon summer bedding arrangement is ensured. Beds that are vacant should be deeply dug, and manured or not according to the requirements of the plants to be used; all fine-foliated plants require abundance of manure, but the ordinary kinds of bedding plants need but little. When the beds are on Grass, the best arrangement, the soil should stand well above the turf and be edged with some kind of dwarf, close-growing, hardy plant. The best for this purpose that has yet come under my notice is *Herniaria glabra*; all our beds are edged with it, and they always look neat, and give but little trouble to keep them in order. About thrice during the summer they need trimming with sheep-shears. Box does not look half so neat, and certainly needs more keeping in order.

Herbaceous plants.—Borders of these are already beginning to look gay with *Crocuses*, *Hepaticas*, *Scillas*, and *Primroses*. All the kinds are now above ground, and gaps can therefore be perceived and be filled up either by dividing some of the old stools or by fresh importations, or indeed by sowing patches of hardy annuals. Trim off all decayed stems, clear away mulchings, and where it is not practicable from fear of injury to the plants to dig in well decayed stable manure, give a dressing of guano or of soot and wood ashes, and then surface fork the entire border. Fresh labels should be substituted for all that are becoming illegible, and especially should they be fixed to the less known kinds of plants, in order that all who are interested in them may the more readily become conversant with their names.

Indoor work.—In the houses and frames there is now much requiring to be done. All kinds of roots and tubers ought to be started into growth. Cannas are quickly increased by cutting up the roots into single eyes, and starting them in small pots in warmth. Part the roots of herbaceous Lobelias, and plant them out in frames having a temperature of 50°. Dahlias may be planted in the same way, but require greater heat if intended to produce cuttings. Those started a month ago will now afford cuttings, which strike quickly in a bottom-heat of 75°. The stronger the cuttings the longer are they in forming roots, and as they make no better plants than smaller ones, it is not therefore necessary to delay propagation in order to get strong shoots. Tuberous Begonias are gradually growing in favour for summer bedding; we tried a few last year, and they withstood the rain far better than Pelargoniums. Any tubers that are to be used for planting out should now be potted, and be allowed to start into growth slowly. A temperature of 45° or 50° is ample. *Begonia castaneifolia*, a first-rate summer bedder, must be increased by means of cuttings. *Begonia Weltoniensis* also makes a fine bed, and this variety is most expeditiously propagated by division of the roots. Seedling sub-tropicals should be potted off before the roots get matted together in the seed-pans, and seeds of the quick growing kinds, such as Tobacco, Castor-oil, Sunflower, Hemp, Maize, and Chilian Beet, should now be sown. In order to make room for slow growing and less hardy kinds, Lobelias, Verbenas, Ageratums, and *Mesembryanthemums* may now be planted

out in cold frames. The soil should consist of loam and leaf-mould in equal proportions. They will then lift with plenty of roots at bedding-out time. *Alternantheras* may now be planted out in manure frames, and a fortnight hence cuttings in abundance may be had, which, if inserted after the manner of the old plants in frames, will give but little trouble, except as to airing, till they are required for the beds. Fine-foliated Pelargoniums must still be kept in warmth, but the common and harder varieties may be transferred to cold pits. Cuttings of the same struck during the winter will now be ready for potting off, and till re-established in the pots should be kept close and warm.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

ARRANGEMENTS of white flowers with substantial green foliage are always satisfactory. The broad glossy leaves of Japan Privet suit all white flowers and last long. A capacious glass bowl holds large twigs of this useful shrub, with white Hyacinths, white Narcissus, and Lily of the Valley; some fronds of the dark shining *Cyrtomium falcatum* stand well up among the taller flowers. Agreeably contrasting with the solid white and dark green of this bouquet is another, also white and green, but made of *Spirea japonica*, *Dentzia*, and long sprays of *Spirea Thunbergii*, now in flower in the open air, with foliage of sweet Geranium Prince of Orange and Maiden-hair Fern put together with a light hand; the Fern is cut from a cool house and immersed in water for some hours before being used. A wide bowl is filled with red-tinted foliage of *Berberis Aquifolium* and broad-leaved Saxifrage; groups of yellow flowers are worked into this foundation, yellow Tulips, Jonquils, and pale yellow Hyacinths, with some rather long shoots of yellow Jasmine; the Tulips are without leaves, their glaucous colour not being suitable with the dark warm-coloured foliage. In a large antique tumbler of engraved glass a few *Iris reticulata* are grouped with young shoots of the large variegated Periwinkle; these fresh green leaves with their broad markings of ivory white well set off the splendid purple of the *Iris* flowers. Deep dishes set in sunny windows hold masses of *Crocus* that open wide in bright weather. The dishes are first filled with small-leaved hedgerow Ivy, and the *Crocuses* worked in in bold groups. One dish has red and brown-tinted Ivy and yellow flowers; in the other the Ivy is green, veined with white, and the flowers are purple, lilac, and white, the colours grouped rather than mixed. Varieties of *Azalea mollis*, forced, are now useful house plants.

PROPAGATING.

No more suitable time could be chosen for cutting back and striking Crotons than the present. When the cuttings are taken off insert them as quickly as possible, removing no more leaves than is absolutely necessary; take some clean 24-in. pots, put a few crocks in the bottom, and fill up moderately firm with soil consisting of loam, peat, and sand in equal parts. After insertion give them a good watering, and keep them close, when they will soon root. Nepenthes may also be struck without difficulty, especially in spring, and by this means short, sturdy, fully developed plants may be secured. The soil in which they root best is fibrous peat and Sphagnum, cut up moderately fine with a liberal admixture of sand. Take the cuttings, not necessarily at a joint, and insert them in small well drained pots in the compost just named; after this water them, and then place them in a close case or under a handlight in the stove, if possible, where there is some bottom-heat. Take care to keep them close and shaded from bright sunshine till rooted, and on no account allow them to become dry, as a moist, steamy atmosphere hastens the formation of roots.

Tree Carnations that have been flowering during the winter will, from the warmth received during that time, have made good young growth

suitable for cuttings, and if put in now will make fine flowering plants by winter. A suitable soil for them is equal parts loam and leaf-mould, with a good sprinkling of sand, the whole being well mixed together and sifted moderately fine. Let the cuttings be of as recent growth as possible. Remove the two bottom leaves, and shorten the others if they are of an unwieldy length, then insert them four or five around the edges of a 4-in. pot, and place them in a gentle hotbed. In this way they will soon root, when they must be hardened off and potted singly in small pots.

Cyperus alternifolius is frequently increased by division and treated as a stove plant, while if raised from seed now and grown on in a cool temperature till autumn the produce would be stout healthy plants, well calculated to resist the various changes of temperature, to which, when used for indoor decoration, it is exposed. In order to obtain seed two or three old plants should be potted in large pots and allowed to flower, when seed in abundance will be the result. It should be sown as soon as possible after it is gathered, for if kept long, it germinates much more slowly and irregularly. Before sowing give the pots intended to receive it a good watering, then sow on the surface, and afterwards sprinkle a little dry sand over the seeds. Place a pane of glass over the pot, and set it in the stove till germination takes place, which will not be long if the seed is fresh, and when that takes place remove the glass at once. The variegated form can only be increased by division, for which the present is a suitable time. In preparing pots for all kinds of soft-wooded cuttings do not press the soil too firmly, as that retards rooting. This remark only applies to soft-wooded subjects such as *Fuchsias*, *Heliotropes*, *Verbenas*, &c. All firm-wooded plants, such as *Heaths*, *Camellias*, *Rhododendrons*, and *Conifers*, require the soil to be made as firm as possible. T.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—As the sun comes out now with considerable force, we have found it necessary to put up the shadings so as to have them ready for any emergency. All our plants having been surface-dressed, repotted, and placed in new baskets where these have been required, there has been no other attention required for some time except to see to their daily wants; some species require more water than others, and when they are making their growth, they require more than they do at other times. The *Arracacums* are now being grown in nearly all collections, and from the tiny *A. hyaloideis*, a species at present thickly studded with pure white flowers on small spikes, to the large *A. sesquipedale* with its wonderful waxy white blossoms with tails 18 in. long, all are well worth attention. *A. citratum*, one of the most useful of the genus, is now flowering freely in most collections. It ought to be well known that most of them require plenty of water and sufficient atmospheric moisture. Thrips have been very troublesome, and we have had to go over all plants likely to be attacked once every three or four weeks either washing or dipping them in diluted tobacco water, in which some soft soap has been dissolved, in most cases washing the leaves afterwards with clear rain water. Indeed, for all purposes, either for washing or watering Orchids, rain water ought, if possible, to be used. The various species and varieties of the genus *Phalanopsis* are making a very beautiful display at present. They succeed best suspended from the glass roof in baskets or pans, and they dislike being disturbed; rather than move them, I would pick the decayed material carefully from amongst the roots and substitute fresh stuff, continuing to do this annually until the teak decays. The new *P. Stuartiana* requires the same treatment as the others. This is a very distinct and beautiful Orchid furnished with long, many-flowered, branched spikes like *P. Schilleriana*. It ought not to be placed near the glass on the sunny side of the

house; rather choose a partially shaded position for it.

Cattleya house.—Blinds must now also be put up here, but early in the year it is best not to shade more than is absolutely necessary. The varieties of *Cattleya Trianae*, introduced during the last few years, are remarkably beautiful, and at this season of the year last long in perfection. In Messrs. Veitch's nursery during the time of the fog a variety of this species had flowers which remained in good condition for five weeks. Considerable quantities of it have been imported recently, and those who have plants of it should plant them in clean potsherds, merely keeping these moist until roots are formed; then remove an inch or two of the crocks from the surface, and substitute the usual potting material, taking care not to injure the roots. *Cattleya citrina*, also recently imported, requires different treatment; it seems to do best attached to a block or bit of tree Fern suspended near the roof. Although this is the usual method, I have found it do well potted in shallow pans in the ordinary way. The *Madevalias* of the *M. Chimera* and *M. bella* type should be placed near the glass in a shady part of this house; the *bella* form does best in baskets, as then the flowers either hang over the sides or push out through openings therein. The *Chimera* form, if true, produces its flowers on an upright stem. *Madevalias*, now growing freely, require a good supply of water. If plants of *Odontoglossum citrosomum* have not yet been repotted there is yet time to do so, but it ought to be done at once, as the plants will now be making fresh roots. *Angulos* of all the different species ought to be potted when the young growths are seen to be starting from the base of the old bulbs. This they are now doing, and no time should be lost in attending to them. If the potting material is not in good condition it ought all to be shaken from the roots. I have frequently recommended plants of *Dendrobium Jamesianum* and *D. infundibulum* to be grown exclusively in the cool house, where they do well all the year round, but I do not think I ever saw more healthy plants of these than I did the other day in Sir T. Lawrence's collection at Burford Lodge, and in that of Mr. Lee at Downside. In both cases they were grown in the cool end of the *Cattleya* house. Some of the plants were attached to blocks; others were potted in the usual way. *Odontoglossum Londesboroughianum* succeeds best in the warmest end of the *Cattleya* house. This is not often seen in collections, but when well grown it is an excellent plant, the long, drooping, branched spikes continuing to produce flowers for months together. It is well grown at Burford Lodge, attached to a semi-circular framework of teak rods, through which the roots run into a compost of turfy peat and Sphagnum. It also likes a light position.

Cool house.—Repotting and surface dressing being completed, it now remains to carefully attend to the growing and flowering of the plants, and it should be understood that the conditions most conducive to healthy leaf and bulb development are not those under which the flowers remain longest in beauty. A damp, cool atmosphere, with little artificial heat, causes the flowers to spot, and for this reason it is desirable when the collection is a large one to be able to remove the flowering plants into a house by themselves, where they can have the advantage of a warmer and drier atmosphere. They usually rest a little before they start into growth after flowering. It will also be found that although they were free from slugs and snails before they were potted some have been introduced with the fresh Sphagnum. As the weather gets warmer the temperature will increase. If 50° has been the minimum hitherto it will gradually rise above this in mild weather, although it may still fall below it on cold nights. Newly-imported plants of *Odontoglossums* need not be potted at once. If there is no room for them they may be laid on a surface of dry Moss or some similar material, and be shaded from the sun. As soon as new roots form they may be potted. Amongst the new *Odontoglossums* adapted for

cool house culture *O. Edwardi* is proving itself to be a really distinct and desirable species. It is now throwing up strong spikes, each containing more than 100 blooms of a distinct violet-purple tint quite new, and about $\frac{1}{4}$ in. across. It is now in flower in Mr. Walter Cobb's collection at Sydenham. I have noticed sometimes in looking over collections that the small growing species of *Odontoglossums*, such as *O. Rossi*, of which there are now so many fine forms, a charming species; *O. roseum*, and *O. Cervantesi* are placed where they are overshadowed by larger plants. It is better to place the pots containing these in baskets, and suspend them near the roof. Or if the collection is large they may be placed in a part of the house by themselves. These small growing Orchids also succeed if placed in shallow pans. It is well to be careful in watering such plants, as if they are hung up out of the reach of the eye they are apt sometimes to be neglected.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Early orchard houses.—One of the most important operations in this department at the present time may be said to be the thinning of the fruit, otherwise Nature may assert her right to relieve herself by casting the whole of the crop. It will not be wise to thin Peaches and Nectarines down to the exact number of fruits each tree is considered capable of carrying, but under well directed management a small percentage will suffice for the final thinning after the stoning process is complete. If thinning has been carried on simultaneously with disbudding, and all the drooping fruits have been removed, those which are placed near home should be selected for the crop, as the wood near the base is generally well ripened and swells off the largest fruit, while the cultivator insures to himself the option of disbudding and shortening back his trees where they show a tendency to become loose and unsightly in their growth. As the days increase in length and the sun gains power the trees will take liberal supplies of stimulating liquid a few degrees warmer than the mean of the house, and good syringing with clean soft water at a temperature of 70° twice a day when fine will keep them clear of spider and facilitate the rapid development of the fruit. If Strawberry plants occupy the shelves keep them thoroughly syringed backwards and forwards until they begin to change for ripening, and then if possible move them to quarters where spider can do no harm, and thoroughly cleanse the shelves they have occupied. Give timely attention to ventilation on bright mornings by opening the lights; when the temperature touches 65°, run up to 75°, with a free circulation; reduce gradually and syringe about 3 p.m. The minimum heat should not exceed 55° on mild nights until the fruit is stoned, and 50° will be sufficient in severe weather.

Late houses.—Owing to the absence of sun, trees in late houses and others which have been wintered in the open air are all in an equally forward and promising condition. If the latter were well washed before they were taken into the house nothing more will be needed until the blossoms begin to show signs of opening, when a good fumigating will keep them free from aphid until after the fruit is set. In the arrangement of the trees it must be borne in mind that Figs, Peaches, and Nectarines will stand the most heat; then follow Apricots, Plums, Cherries, and Pears. Of the latter the best dessert kinds only should be grown, and in the event of the space being limited they may be plunged in a warm, sheltered place in the open air when all danger of spring frosts is over. Ventilate to the full extent, and dispense with fire-heat until the blossoms begin to open, when a little warmth will do good service in damp or frosty weather.

Peaches and Nectarines.—I must again direct attention to the important operation of disbudding and pinching in early houses. Weak trees to which I lately alluded, as well as late kinds grown at the coldest end for succession, will now

require manipulation upon the same principle as they break into free growth, the best of all proofs to the practised eye that root action is going on, and daily pinching will not produce a check. Many people make a point of leaving a great number of these pinched shoots to form spurs, and sometimes in early houses they do very well, but to me spur fruit never appears so fine as that borne by a good shoot of 1 ft. in length, and the system is a failure in late houses. When all the base shoots have been neatly tied down to the current year's fruiting wood, a free and easy growth may be encouraged quite up to the stoning period, gross shoots and leaders only being tied in to check an uneven distribution of the sap, or to form shade to large bare branches in the centres of the trees. With a large area of foliage exposed under glass and all the roots inside, plentiful supplies of water will be needed, and syringing twice a day will play an important part in good culture. If forcing is not being carried on against time a low night temperature of 56° to 60° is strongly recommended until after the stoning is complete. The heat by day may range 10° to 15° higher, with plenty of air, provided it can be given without causing a draught or sudden depression in catching weather, when early closing of the valves and moderate ventilation will answer best. A sharp watch must be kept for green, brown, or black fly. The first, if taken in time, succumbs to a moderate smoking; the last two are more tenacious of life, and being generally found on the points of gross, crude shoots, dipping in a strong insecticide may precede the smoking. Spider sometimes puts in an early appearance, but unless Strawberries have been occupants of the shelves, no excuse can be found for the person who syringes the trees.

Succession houses.—Persevere in the regular syringing of trees in succession houses until the flowers are ready to open, and fumigate before they expand. This important, simple, and inexpensive operation should never be neglected, as many houses are spoiled for the season by allowing fly to get into the blossoms. See that the borders are well watered, and old or weak trees mulched before they begin to feel the strain of a crop of fruit. Ventilate freely, and lay up strength and vigour by keeping the houses cool at night. The buds on wall trees and in late houses are still coming on together, and it is a question if the walls will not be in advance at flowering time. Be this as it may, follow up liberal ventilation until the flowers are fertilised, and if extreme lateness be an object, only use fire-heat when there is danger of the flowers being injured by damp or very severe frost. Of the latter, Peach blossoms under glass will stand several degrees, provided they are kept dry and free from draughts.

Cherries.—Where the roots are confined to the interior of the house an examination of the borders should be made as soon as the fruit is set, and in the event of water being required it should be supplied at the mean temperature of the house, which may range from 40° at night to 56° by day. If late kinds are still in flower let them be carefully fertilised, and defer general syringing until they are safe and the petals of the flowers begin to fall. When trees which have covered the trellis have made five or six leaves all side shoots not likely to be wanted may be pinched to form spurs, and leaders may be tied down to the wires. When syringing is resumed use tepid water twice a day. Give air at 50°, open the front lights at 58°, and run up a few degrees under sun-heat with a free circulation, always bearing in mind that the Cherry is the most impatient tree we have to deal with under glass, and it is always best to err on the side of low temperatures with plenty of air when cutting draughts can be avoided. When this stage has been reached the usual enemies, black or brown aphids and the small grub, may be expected to appear. The first may be destroyed by timely and repeated fumigation, but the latter can only be extirpated by careful hand-picking.

Melons.—The first batch of pot plants plunged in bottom-heat from fermenting leaves placed over hot-water pipes will now be making

good progress, and the daily routine will consist of careful watering, syringing, and ventilation wherever a chink of air can be admitted through the early part of the day. I stated the other day that confinement of the roots by means of pot culture causes some varieties to throw out side shoots and produce plenty of female blossoms before the leaders reach the top of the trellis. Where this is the case and very early fruit is wanted, the points must be pinched out to throw strength into the side shoots when the blossoms begin to open; the atmosphere of the pit must then be kept drier by means of increased fire-heat to admit of a gentle circulation of air, and syringing may be discontinued for a few days until the fruit is set and begins to swell. When grown under the restrictive or pot system it rarely happens that the most wilful rambler is not brought into bearing at an early age; and when a "set" of fruit has been secured, the plants may be well rammed and top-dressed with stiff loam, bone dust, and dry cow manure, into which a complete mat of hungry feeders will soon find their way. These must be well supplied with good liquid, a few degrees warmer than the house, which must now range from 70° at night to 80° by day, and 85°, or even 90° after closing, with solar heat and moisture. In pot culture the preservation of all the stem leaves is an important matter, and some of the succulent, hairy-stemmed varieties, which are subject to scalding, should never be syringed on bright mornings, as they hold the water and suffer when air is admitted, but this danger disappears after the house is closed for the day, when overhead syringing will do no harm.

Cucumbers.—To maintain the supply through March and April, old plants which have been in bearing all the winter will take liberal supplies of warm liquid to keep them going, for if once allowed to receive a check early spring-sown plants will commence fruiting before they can recover and be of further use. By this time the plants will have replaced the old foliage with young growths, which must be neatly tied down and stopped at the first joint beyond the fruit when it becomes evident that the foundation of a complete covering has been laid. If spider has gained a lodgment, this dull weather will favour its destruction by the use of insecticides or regular syringing with clean, soft water, light cropping, and high feeding with good liquid from the tank and guano water alternately. Sprinkle all available surfaces with the same, top-dress the roots with pure loam and old lime rubble in preference to manure, which encourages worms and leads to ultimate failure. Aim at a steady bottom-heat of 85° from pipes and fermenting material combined. Let 70° be the standard at night, and 85° by day. Give air at 78°, and close early with atmospheric moisture, but avoid wetting the pipes when they are hot enough to generate scalding steam.

Spring plants.—These are now making good progress, and their clean, healthy growth is always pleasant to look upon. If planted upon hills, avoid producing a too vigorous flush of Vine by feeding or the use of manure, as the time is at hand when stimulants will be needed. Train regularly without crowding, and defer stopping until quite two-thirds of the allotted space is covered. Keep the glass well washed inside and out. Let the night heat stand at about 68°, give air at 76°, and close with plenty of solar heat in preference to having recourse to sharp firing. Earth up plants in frames, renovate the linings back and front alternately, to prevent checks, and aim at the heat recommended for spring plants in houses. Always keep a supply of warm, dry compost and plenty of fermenting material on hand. Cover at night with dry mats and give a little air to prevent the accumulation of injurious gases.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

The main crop of Brussels Sprouts, Snow's Broccoli, and Red Cabbage, the latter for cutting late, should now be sown on a slight hotbed under

glass; also Veitch's Autumn and Self-protecting Broccoli, with a pinch of Paris Cos Lettuce. Still I always find in spring-sown Lettuce the few seeds sprinkled on the top of the Onion quarter the earliest. Onions and Carrots had better wait for ten days; when sown early the sharp spring winds turn them yellow, and I have had on two occasions to resow Onions. Parsnips may now be sown with advantage. We are busily employed turning up every inch of ground which we possess, thus bringing all under crop at the proper season. Now is a good time to make plantations of Globe Artichokes. On taking up the old stools we found in one case many dead or crippled; we pulled away the young suckers and planted them in burnt refuse, a capital thing for many purposes; whenever I sow small seeds, outside or in, I always cover them with this material. Early frame Potatoes, Radishes, Carrots and young plants generally should be duly aired. This day (March 3) has been so truly enjoyable and warm, that all the lights have been drawn off, so that full advantage of the weather should be taken by all inmates of pits and frames. Prick off early Celery in small boxes for early work, and get manure well worked to make the bed which the main crop of Celery will occupy. I sow from March 10 to 14. Tomatoes may soon be sown; grow them on until they worthily occupy 6-in. pots, when they will be 3 ft. high in May, and begin to flower and fruit at once. Little plants put out in May grow up to September before setting or ripening their fruit. French Beans must be attended to in accordance with the demand (as a market crop they are ruinous). This fine open weather gives us an opportunity of getting all walks free from weeds, thus making all clean and tidy.

MARKET FRUIT GARDENS.

J. GROOM, LINTON PARK.

OWING to the favourableness of the season, work is generally in a forward state. Planting may now be considered to be finished. Stocks intended for grafting are headed down in readiness for that operation, and younger stock is planted out in nursery lines. Grafts, if not already secured, should be cut immediately, as the sap will now be moving in nearly all kinds, and they are best cut in as dormant a condition as possible. Young bush fruits, such as Gooseberries, Currants, and Nuts, not required for forming new plantations should be lifted and cut in quite close and replanted about 1½ ft. apart, so as to make useful little bushes for another season. Cuttings collected and laid in by the heels during the pruning season must now be prepared and planted in lines. Suckers of the Fairleigh Prolific Damson, a kind that reproduces itself true in that manner, are collected and planted in rows to gain strength for forming standard or half-standard trees, the latter being preferred, except in positions where cattle would destroy the branches; for, if required, a half standard can be readily converted into a full standard by cutting away the lowest tiers of branches by degrees; the stem, too, needs less supporting by means of stakes than that of standards, and it increases in diameter much more rapidly when the lower branches are left on for a few years than when they are trimmed at once. If not already done all freshly planted trees should have a covering of partially rotted manure spread over their roots before drying spring winds affect them.

The pruning of Nuts of all kinds may now be completed, for the catkins are fully in flower, and the abundance of little red-tipped female blossoms give promise of a good crop. All useless wood is cut away and only fruitful spray reserved. The Nut crop is so valuable that special care is taken not only in forming the bushes by careful pruning, but also in manuring them—a favourite application being the refuse from skin and hair factories, such as the dressings from hare and rabbit skins, old rags, &c. This is lightly forked in around the bushes, which, being surface-rooters, are found to depend more for fruitfulness on their active roots close to the surface than those that

penetrate deeper. This is a good time to give both trees and bushes a good dusting of freshly-slaked lime which answers the double purpose of killing Moss and Lichen, and making the buds distasteful to birds; when washed off, too, it acts as a stimulant to the surface roots. It should be put on in damp, still weather, so that it may stick to the trees and get dried on before heavy rains occur.

The protection of fruit in the way usually practised in gardens is not possible on a large scale in market grounds; nevertheless, owners of such grounds are fully alive, to the importance of shelter, and I find many are now planting rows of Poplars and other quick, erect-growing trees quite thickly, so that they may run up and form a barrier to break cold currents from exposed quarters. Thorn or Quick hedges may also be allowed to run up, keeping them cut in narrow both at base and top, as it is surprising the amount of shelter which a hedge will afford. Preparation must also be made for the coming fruit season by looking over the stock of baskets, ladders, &c., and replacing any deficiency before the busy season arrives. A good supply of packing wood must be cut and stored in some dry place. Long rods of Ash, Hazel, or Chestnut are generally used; they are prepared in wet weather by cutting them in lengths to suit sieves or half sieves, and split up to the size required. If kept dry until a few days before they are wanted and then soaked in water, they will be found to be as tough as wire, and will withstand the rough usage to which the baskets are subjected in travelling to market, while green wood would fail.

NOTES OF THE WEEK.

CORBULARIA NIVALIS.—This is one of the several varieties of *Narcissus Bulbocodium*. It is smaller than any other we know of, the flower being scarcely 1 in. long, but bright yellow, and therefore attractive. A plant of it on the rockery at Chiswick has just expanded its first bloom.

A YELLOW FRITILLARY, from Smyrna, comes to us from Mr. Ware. It is a small one, like the Californian *F. pudica*, the blossoms being nodding, clear yellow bells of thick texture. It appears to grow but a few inches high, therefore a good subject for the rock garden. It seems to be *F. armena*.

THE ARBORETUM SEGREZIANUM.—We have received the fourth issue of M. Lavallée's "Icones," which is continued in the same excellent style in which it was begun. The present number contains three plates of the very interesting genus *Pterocarya*, two *Hawthorns* (*Crataegus*), and *Calycanthus floridus* var. *ovata*.

THE WASHINGTON ORANGE.—Messrs. Hooper send us a very large and remarkable Orange, which they call the Washington. It is egg-shaped, and exceedingly good and brisk in flavour, but has a very thick skin. It is sent them from America, where Orange culture is making rapid progress in the south. We believe the Orange is in cultivation under another name.

CORYDALIS LEDERBOURI seems to be one of the handsomest of the cultivated species, and is quite distinct from any, as the leaves are broad and very glaucous, and the flowers, of a deep vinous purple, are in long slender racemes. It is new, therefore not much known yet, but it may well take a place among desirable spring flowers. From the Hale Farm Nurseries, Tottenham.

AUBRIETIA EYREI.—There are now in cultivation several high coloured varieties of *Aubrietia*, such as *A. Campbellii*, *Hendersoni*, and others, including the variety under notice, which is one of the finest. Its colour is an intensely deep rich purple, and the flowers are larger than

those of most of the others—at least they are so on the plant now in blossom at Chiswick, where it is grown in pots with other alpine plants in frames.

LACHENALIA NELSONI.—When well grown, as at Chiswick, this beautiful new hybrid *Lachenalia* is one of the finest objects imaginable, so elegant in growth, and so brilliant in colour. The plants in question are in 5-in. pots, and each bears some half dozen flower-stems furnished for nearly half their length with rich orange-coloured bells. Some forms have dwarfier and more compact stems than others, but all are beautiful and invaluable for greenhouse decoration in early spring.

PODALYRIA STYRACIFOLIA.—This handsome Australian shrub, belonging to the Pea family, a class of plants at one time more generally cultivated in our greenhouses than they are now, forms a tall bush with small foliage of a greyish colour. For the past month or so a plant of it in the conservatory at Kew has been covered with a profusion of rosy pink blossoms that have made a fine display. It is a plant that well deserves a place in every good garden.

SAXIFRAGA SANCTA.—This charming little alpine species does not seem to be much known, although amongst *Saxifragas* in flower few possess such characteristic beauty. It is of spreading habit, forming a dense carpet of the richest green, and is at present studded with tiny flower-spikes about 1 in. or so high, terminated by a few small yellow blossoms. On the rockery at Kew there is a good sized plant of it fully exposed, and evidently in excellent condition.

CHILIAN CROCUS (*Tecophylaea cyanocrocus*).—Of this exquisite little bulbous plant there was a few days since a specimen in flower in the conservatory at Kew, where, owing to the intensely rich blue of its open, funnel-shaped blossoms, it was conspicuous even among the crowds of showy plants that surrounded it. The flowers we have seen as yet of this novelty are in no way inferior to those depicted on the coloured plate in *THE GARDEN*, drawn from Max Leichtlin's plants last year. It is so distinct and charming that everyone should make its acquaintance.

DOUBLE ROSE-LEAVED BRAMBLE.—This plant (*Rubus roseifolius* fl.-pl.) has often been alluded to, but it may not be generally known that when gently forced it yields a crop of lovely rosette-like blossoms of snowy whiteness early in the year. The other day we saw some excellent flowering specimens of it, and the chasteness of the bloom in contrast with the delicate tones of the newly unfolded foliage was extremely pleasing. This Bramble is perfectly hardy and flowers naturally in summer, but, like many other shrubs, it lends itself kindly to forcing.

FORSYTHIA SUSPENS.—This hardy shrub is valuable in shrubberies on account of the abundant crop of bright yellow blossoms, which it bears in early spring, and it is not less valuable for the embellishment of the conservatory in February or March if forced gently into flower. Some excellent bushes of it at the present time in the conservatory (No. 4) at Kew contribute in no small degree to the attractiveness of the house, its long wreaths of pretty bell-like blossoms being extremely showy. *F. viridissima* also lends itself readily for similar purposes, but it is scarcely so desirable as *F. suspensa*.

MELVILLE'S LATE SNOWDROP.—The chief value of the varieties of *Galanthus nivalis* that have originated with Mr. Melville, of Dunrobin Castle, is the extreme earliness of some and the extreme lateness of others. One of the latest forms has just expanded its blossoms on the

rockery at Chiswick—a remarkable fact, seeing that the ordinary form has been over for some time, and developing seeds. Another point, too, in favour of Mr. Melville's latest variety is its dwarfness and the large size of the bloom compared with that of the ordinary type. These Snowdrops are a decided gain in a horticultural point of view.

ALOE LYNCHII.—This new Aloe is just now one of the most attractive occupants of the succulent house at Kew. From the centre of a compact rosette of thick fleshy leaves the widely branching flower-spikes rise 1 ft. or more in height. The flowers are nearly 1 in. long, and possess a peculiar combination of colours—bright coral red, green, and creamy white, and the profusion in which they are borne renders the plant very attractive. It is a hybrid recently named by Mr. Baker, in compliment to Mr. Lynch, of the Cambridge Botanic Garden, who raised it while at Kew between *Aloe albocincta*, and *Gasteria verrucosa*. The progeny partakes in a marked degree of the characters of both parents, between which it is indeed exactly intermediate.

ABUTILON IGNEUM.—This beautiful greenhouse climbing plant is not nearly so well known as it should be, for it is one that has few rivals for adorning the roofs of greenhouses in early spring. Its gracefully pendent blossoms, though not brilliant, are extremely handsome, the deep crimson of the interior of the bells being finely netted and veined. The flowers, suspended on slender stalks, are peculiarly adapted for embellishing small vases in a cut state, and thus employed they have an extremely pretty effect. In one of the houses at Chiswick a few large plants of this *Abutilon* are now beautifully in flower.

EARLY FLOWERING ACACIAS.—Amongst the host of Australian *Acacias* grown in the temperate house at Kew a few now begin to be attractive, the most conspicuous being *A. verniciflua*, a kind with dense whorls of feathery blossoms of a pale yellow colour and deliciously scented. Of *A. verticillata* there are some grand specimens 10 ft. or 15 ft. high, covered from top to bottom with bright yellow blossoms, which contrast strongly with the very deep tone of the spine-like foliage. One of the very best of all the *Acacias* is *A. Drummondii*, a species now beautifully in flower in the conservatory. It blooms even in a small state under pot culture, and forms neat and compact bushes covered with bloom.

BEGONIA MANICATA.—When any particular plant is taken in hand in the Royal Horticultural Gardens at Chiswick, its capabilities are tested to the utmost; and this is the case with the *Begonias*. Some time ago *B. insignis* was the kind that made the best display; now it is *B. manicata*, a fine group of which may be seen in a house mainly devoted to plants in flower, such as *Primulas* and the white *Eupatorium Weinmannianum*. The feathery elegance of the flower-stems of the *Begonia* and the soft rosy pink colour of the flowers, together with the broad, handsome foliage, combine to render this group a most effective one. There are several other species that one could wish Mr. Barron would take in hand, particularly the mid-winter flowerers, which are so valuable at that season.

THE EARLY FLOWERING HONEYSUCKLES.—The two early flowering *Loniceras* (*L. Standishi* and *L. fragrantissima*) are just now in perfection about London, being profusely laden with their modest white blossoms that emit the delicious fragrance so characteristic of the common *Honeysuckle*. These two *Loniceras* are very much alike; indeed, they are probably synony-

mous, but yet there is a striking difference between the plant of L. Standishi in the Kew Gardens and that of L. fragrantissima in the Horticultural Gardens at Chiswick; the former is almost nude as regards foliage, while the latter is quite green with unfolding leafage, which, of course, renders the shrub much more attractive. Be the difference what it may, both are highly valuable in gardens, if only for their delightful fragrance.

PRIMULA ROSEA.—The first flowers we have seen this season of this lovely Himalayan Primrose were those we saw the other day at Chiswick, where a few plants were forced gently into bloom by placing them in the slightly heated atmosphere of a cool greenhouse. Under such conditions they opened well, but not so when subjected to a high temperature. There is a considerable range of variation even in this Primrose, some forms having tall flower-stems, others very dwarf ones—in fact, almost stemless; and, again, are considerably deeper in colour than others, some having flowers almost white. The plants in the open air at Chiswick are not yet showing flower.

RHODODENDRON NILAIGHRICUM AND ARBOREUM.—The unrivalled collection of Indian Rhododendrons in the temperate house at Kew is now beginning to unfold its wealth of beauty, each week adding to the number of species in flower. We have previously alluded to the lovely *R. argenteum*, and still there are some stately specimens of it in perfection, its huge trusses of creamy white blossoms having been expanded for nearly a month. In addition to this there are also now in bloom the Nilgherry Rhododendron and *R. arboreum*. The former has dense, but moderate sized trusses of bloom of a lovely deep rose-pink, the colour of *R. arboreum* being very deep and rich. An unnamed kind from Assam, probably a variety of *R. arboreum*, is likewise in flower.

NEW ALPINE CANDYTUFT (*Iberis stylosa*).—Under this name there is a very small, neat, and pretty plant now in flower in the Horticultural Gardens at Chiswick. It grows but 1 in. or so high even when in flower, forming small spreading tufts, studded with tiny bluish-tinted blossoms, similar in colour to those of *I. Tenoreana*. As to its duration, we cannot speak, but it has the appearance of being only a biennial; judging, however, by the quantity of it at Chiswick, it may, we think, be easily raised from seed. The pretty white-flowered *I. saxatilis*, the form from the Grecian mountains, is likewise finely in flower; indeed, it is almost a perpetual flowerer. It, too, is of dwarf growth, forming compact spreading tufts, now masses of snowy whiteness.

PRIMULAS AT CHISWICK.—For some weeks past the chief attraction in the Royal Horticultural Society's Gardens here has been the grand collection of Chinese Primulas which they contain. Though on the wane and the early varieties in seed, the houses are still gay with several sorts, notably Chiswick Red and White and Williams' Alba magnifica, three of the very best. Of other sorts there are also some grand specimens quite huge pyramids of bloom, and, being arranged so that the colours harmonise, they produce an extremely fine effect. The double kinds, too, are grown well here, particularly the Old Double White, than which, it is said, no better or more useful sort has yet been raised. There are large plants of it here still covered with bloom that have supplied the flower-basket since Christmas—sufficient proof of its worth. Other double kinds in good condition now are the white and pink sorts of Gilbert's varieties. Of the white, Mr. Barron has better plants than we have before seen, and they are covered with

bloom. Miss Eva Fish, one of Messrs. Henderson's varieties, too, is now very attractive, the lilac-purple tint of its rosette-like flowers being distinct from that of any other kind.

DR. TRIMEN'S REPORT.—I am sure you will be the first to regret the attack upon my former colleague, Dr. Trimen, which appeared in your last issue, when I point out to you that the sentence upon which it is based does not appear in Dr. Trimen's report. The only sentence which bears upon the matter is the following in reference to the appointment of a head gardener from Kew: "I have every reason to expect that a greater measure of success in the raising and propagation of foreign plants will result from this appointment." Further comment upon "F. J. E.'s" article is needless. No doubt the passage quoted by him is fairly open to criticism, but Dr. Trimen is not responsible for it.—JAMES BRITTEN.

FRUIT GARDEN.

EARLY FORCED STRAWBERRIES.

WHERE ripe fruit is required early, say in the latter part of February, an early start must be made, for Strawberries will not be hurried. Although it is easy enough to get them to start into growth, or even flower, it is by no means so easy to get flowers that will set and mature good fruits, unless great caution is used in applying heat in the earliest stages of forcing. I need hardly remark that only the earliest potted plants, in medium or rather small-sized pots, should be used for early work, as it would be waste of plants to put any into heat for that purpose that were not thoroughly matured in the crown, and the ball a complete mass of fibrous roots. These should have been kept as dormant as possible during the early months of the year by withholding water, except just enough to keep the soil from getting too dry, as anything like drought is fatal to Strawberries at any time; but for plants that are intended to start early it is desirable to give a complete rest as possible before starting. This being accomplished, select the number required, and set them in a frame or pit as close to the glass as possible, or in the earliest vinery or Peach house, then, being kept close preparatory for forcing. If mild weather prevails, very little fire-heat will be required for some time, the temperature for starting not requiring to be above 50° by night. That temperature may be very gently advanced as the plants get into active growth; but a high night temperature is fatal to Strawberries. The better plan is to start early, and push on as rapidly as may be required by means of higher day temperatures, shutting up after bright, sunny days, with a high, moist temperature when they are pushing up their flower-spikes, letting the night temperature sink down to say 55°. When the plants are in flower a dry, buoyant atmosphere with plenty of air must be kept, and when the flowers are fully expanded fertilise each bloom with a camel's-hair brush at mid-day, for unless every separate pip is perfectly fertilised the fruit will be malformed. As soon as sufficient fruits have set for a crop pinch off all the rest of the blooms, and give a moist temperature—weak solutions of liquid manure being very beneficial. If the pots are very full of roots a square piece of turf with the Grassy side downwards may be put under them, as it can be moved about with the pots, and will quickly be permeated with active rootlets. This is much better than saucers; in them stagnant moisture does more harm than good; for, although Strawberries are moisture-loving plants, they soon suffer at the root if stagnant water is allowed to collect around them. With varieties that have long footstalks I find it advantageous to put forked stakes to support the bunches of fruit, as when the weight of fruit brings them down over the edge of the pot they are liable to get bruised, and the sap gets checked in its flow towards the fruit. When nearly ripe they should be removed to quite a cool house for a few days before gathering. As regards sorts for early forcing, I have tried a good

many, but have found nothing to excel Vicomtesse Héricart de Thury, Keen's Seedling, and La Grosse Sucrée. J. G.

LOW TEMPERATURES.

THE editor of the *Gardener* in this month's issue of that periodical gives his Vine calendars (quoted by me in THE GARDEN of February 4) a complexion which does not belong to them. The question is, has or has he not reduced his temperatures in his calendars and fallen in with the views of his younger brethren? I am accused of suppressing the "weather circumstances" and figures of the *Gardener* calendar, and here is an example of how Mr. David Thomson makes it out. At page 80 of the *Gardener* my quotation from the *Gardener* calendar reads: "The night temperature may be kept at 70° at 10 p.m. and 6 a.m. *Muscats* may be kept a few degrees warmer; drop a few degrees if the weather be cold and unsteady." In Mr. Thomson's rendering of this passage in the *Gardener* for March the italics here given are left out, the word *at* and the figures 65 are added to his calendar, *now some seven years after the original was written*, and I am accused of keeping the "weather circumstances" and the "65° carefully out." Mr. Thomson was very well aware that this May calendar alone shows a clear drop of 10° itself; unless, indeed, his copy of the *Gardener* for May, 1875, is different from other people's. I need hardly state that "65° at 6 a.m." is not to be found in the calendar in question. 70° is the minimum given at 6 a.m., and *Muscats* are to be kept warmer still—75° at 6 a.m., according to his rule. 70° is the only figure given in 1876 and 1877. I am unable to find any passage in the *Gardener* like Mr. Thomson's version. Mr. Barnard, of Norris Green, has also written corroborating Mr. Thomson's version on this point in the *Gardener*, but, suspecting that he had been misled, I sent him the copy of the *Gardener* from which I quote, and I have a private letter from him acknowledging his mistake. I may just mention that I gave Mr. Thomson's "weather circumstances" in seven instances, but they are of no value, for his former high temperatures were regulated just the same as his low ones are now—65°, 70°, and 75° according to the weather—and now they are 55° and 60°, &c., according to the same rule. J. SIMPSON.

[It is with reluctance we again open this question, but do so in justice to Mr. Simpson, who sends us the volume to which he refers showing the exactness of what he points out. Mr. D. Thomson has also written that he "fell into a blunder by a mistaken reference." Here the matter must rest, so far as we are concerned. We should like to protest, however, against such words as those employed by one or two writers in the *Gardener* on this matter. Mr. Muir, for example, prints a whole string of the strongest epithets, not only without furnishing a word of proof of their fitness, but without writing a line in the attempt to justify one of them. We can understand a judge pronouncing a man "dishonest" with regret, even after sufficient evidence to that effect; but for a writer to use this and similarly strong expressions in a public journal, without a single word to justify them, is a thing which seems to demand an equally public apology.]

SHORT NOTES—FRUIT.

The fruit trees in my garden.—Apples, Pears, and Plums—although covered with blossom every season, never have a crop of fruit. I shall be glad to know what may be the probable reason of the unfruitfulness, and what treatment the trees require.—D. C.

Marshall Pear.—This new pear, which originated in Washington County, New York, is well spoken of in America. Mr. Meehan thus speaks of it in the *Gardener's Monthly*: "The fruit of the Marshall came a few weeks ago, and we can truly say that few Pears will excite it in flavour. We regard it as a valuable acquisition, and we say this knowing full well that the list of Pears recommended for cultivation is already too large."

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"This is an Art
Which does men's Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

LIVING PLANTS BY POST.

It does not seem to be generally known that the sample post offers facilities for procuring small living plants from foreign countries at very little cost. Within the last few days I have had two examples of this from Dominica, one of the West India islands. One of the packets, costing 2d., contained a quantity of the extremely rare *Hymenophyllum ciliatum* in beautiful condition. This Fern is not in Messrs. Backhouse's catalogue, and is only, so far as I am aware, in cultivation in the Royal Botanic Gardens of Kew and Edinburgh. There was no packing of any kind with the plant beyond two coverings of gutta-percha sheeting, enclosed in an ordinary official envelope. The gutta-percha effectually prevents evaporation and is extremely light, a square yard weighing only 2 oz. The total weight of the packet was under 2 oz. This gutta-percha is to be had at the shops of dealers of india-rubber or gutta-percha articles. The cost in Edinburgh is about 2s. per yard. I have been in the custom of sending a small piece through the post to my correspondents, as it is not always obtainable in foreign countries. The other packet contained half-a-dozen good tufts of the dainty little *Xiphopteris serrulata*, a Fern apparently not in cultivation in Britain. It was actually growing under its cover. Two *Hymenophyllums* were mixed up with it, but too small for determination with any certainty. One, however, seems to be *H. polyanthos*, a widely spread tropical Fern.

I have now under cultivation nearly 50 species of *Trichomanes* and *Hymenophyllum*, some of the rarest having been sent me by post. The experience I have had of this mode of transmission is encouraging, and I would like much to know if any other of your correspondents have tried it. Failures should be recorded as well as successes, that it may be known what to avoid. Plants apparently dead should not be thrown out too soon, as spores and seeds often lie dormant for years. In a potful of *Trichomanes crispum*, sent from Jamaica upwards of three years ago, seedlings of *Polyschium denticulatum*, a rare Jamaica Fern, are still coming up, and in the same pan a beautiful little variegated creeping plant, apparently *Peperomia*, of a species I have never seen in cultivation. The Post Office authorities promise a parcel post soon, which, if extended to foreign countries, will afford greatly increased facilities for the importation of novelties.

I hope these notes will induce those who have opportunities to procure plants in this way. Many new plants might thus be introduced. Filmy Ferns, in particular, are suitable subjects. The plants themselves are lovely, and none are so well adapted for a drawing-room under a bell-glass or in a Wardian case, where they may be left for weeks uncared for so long as they are kept out of the direct rays of the sun. The ordinary occupants of these cases—*Adiantums* and such like—would, if treated in this way, soon become a rotten mass. One of the most beautiful examples of a Wardian case I have ever seen was in the drawing-room of a physician in the West-end of London. The lower part of the case was a fresh-water aquarium, and out of the water sprang an archway of rough stones covered with the ordinary Killarney Fern. It was a novel and most interesting case, and one which

the owner told me had given him very little trouble after its formation—some fifteen or twenty years previously. The price of Filmy Ferns in the very few nurseries where they can be obtained is prohibitory, varying from half a guinea to five guineas, or even higher, according to rarity. It is probably owing to this that these plants are so little known and so little grown.

P. NEILL FRASER.

Rockville, Murrayfield, Edinburgh.

SPRING NOTES.

THE three weeks of fine weather since my last (Feb. 18), with a good number of sunshiny days, have produced a marked change in our garden, which is now very gay, but we are much behind some other districts. In Cumberland last week, near the seaside, the Laurels were in full flower, and farm women were carrying huge basketsful of Daffodils to market. It is not so here. We have a good many Daffodils in bloom, but they are not plentiful, and only a few sorts have yet flowered. *Narcissus minor* and *nanus* are well out, and so is *N. obvallaris*, the Tenby Daffodil, the richest yellow and most beautiful in form of them all. There are also a good many of the *N. Pseudo-Narcissus* group, single and double, those of the bicolor varieties being the most plentiful. The Pulmonarias are amongst our most interesting spring flowers. *P. angustifolia variegata* has mottled foliage and rich, deep blue flowers changing to purple. *P. sibirica* is the most showy, having Cowslip-like flowers which are pink in the bud, changing to light purple as they expand. There are many other varieties, and all are pretty and doubly welcome because they come thus early and stand both frost and rain so bravely. Our English Buglosses are also worth a corner, being similar, but less beautiful. *Triteleia uniflora* var., the pink variety, is a charming spring flower. Of *Primulas* we have the beautiful rosea in bloom, the brightest of all spring flowers; also *P. marginata*, *denticulata*, and *Henryi*, with hosts of *P. acaulis* of every shade of white, yellow, pink, and crimson, and *Polyanthuses* likewise, of which the new white and yellow giant varieties are exceedingly effective. The *Scillas* (*bifolia*, *sibirica*) and the *Chionodoxas* are now at their best, and furnish a brighter mass of blue than is attainable at any other season of the year. The latter improves on acquaintance; many of the stems carry four or five flowers each as large and bright as a *Nemophila*; when we can have this flower in a mass it will be beautiful indeed. The *Scillas* have all bloomed together here, but in Ireland, *S. bifolia* has been over for nearly a fortnight. *Arabis albidia* is now in full bloom, forming sheets of the purest white on the rockeries and borders. We have a lovely pink variety, *A. blepharophylla*, which is well worth cultivation. *Lepidium procumbens* is also a useful white-flowered rockery plant of like character, as also is *Cardamine trifoliata*, which has dark green, close foliage and very clear white tufts of flowers. The Grape Hyacinths (*Muscari botryoides*) are just coming into bloom. We have long lines of them planted within the Box edgings, and the deep blue colour thus employed is very effective. On the rockeries the varieties of *Saxifraga oppositifolia* are just now of much interest. They are not very different, but all are exceedingly pretty. *S. oppositifolia* forms sheets of purple bloom in the full sunshine, and the individual flowers, borne on tiny stalks, are lovely in form as well as colour. The variety *S. o. maxima* differs only in size, whilst *S. o. Rudolphiana* is much smaller in all its parts, and is brighter in its purple-pink colour. *S. o. pyrenaica* is a stouter plant altogether, carrying its flowers more stiffly and with stronger leaf

rosettes; and the variety *rubra* is of a deeper colour, whilst *S. o. alba* has pure white flowers.

I never saw the *Periwinkles* so floriferous as they are this year. A wood in Cumberland was carpeted with the wild blue variety last week, and on the rockeries here they are covered with their blooms of blue and white. *Emphalodes verna* is now very pretty, and makes patches of the brightest azure where it covers the stones on the rocky paths. Amongst *Forget-me-nots* we have *Myosotis dissitiflora* just coming into bloom, but all the fresh buds and newly opened flowers are pink; it comes quite a fortnight earlier than *M. sylvatica*. After failing for two or three years in succession we have again a plentiful display of Wallflowers. The mild winter has suited them, and they promise to be unusually fine this spring. We had 3° of frost this morning, and it is likely enough that all this spring luxuriance may lead to disaster; otherwise we have the prospect of a great treat in store for the lover of hardy plants.

Didsbury.

BROCKHURST.

DOUBLE WHITE HEPATICA.

I HAVE read with much pleasure the Rev. Wolley Dod's notes (p. 155) on the Hepatica. As the plant is a great favourite of mine, I may be excused for giving my experience with a very rare variety of it, viz., the double white, which is generally believed not to be in existence at the present time. It, however, certainly was so in 1879, when I had two plants of it. In the autumn of 1879 a large strong plant of the double blue produced several double white flowers, and on examination I found they came from two single crowns on opposite sides of the plant; the flowers from one were pure white, and those from the other were of a very pale blue colour. I immediately had them separated from the parent plant, and grew them on till the spring of 1880, when both flowered (very weakly, however); the pale blue one reverted to the ordinary dark blue colour of the parent plant, but the white one produced, to my great delight, a white double flower. The plant, however, seemed very weak in constitution, and with all the care I could give it only lived to the middle of summer. I have preserved carefully the plant which produced this rare sport, but since then have not seen another white flower. I see mentioned in a contemporary a circumstance of a similar character which happened in a nursery at Doncaster about forty years ago, but in that case the double white-flowered plants all reverted to the dark blue type when they flowered the next spring. The double blue variety has less vigour than any of the other forms of Hepatica, and I believe that even although a double white variety may be established in the way I have mentioned, it would always be a very delicate constitutioned plant, and difficult to grow.

WILLIAM B. BOYD.

Faldenside, Melrose.

Plant labels.—Mr. Groom (p. 130) recommends in a great measure the doing away with labels altogether and having the plants marked on a plan instead. I adopted this system some years ago, and had my garden accurately surveyed and put down on paper, following the example of my friend Mr. Anderson-Henry, of this city, with some variations in detail. I have it also transferred to a book on a much enlarged scale and the positions of the plants marked. All this, however, is suitable only for permanent plants, and does not do away with labels to the great bulk of plants in a garden. If Mr. Groom will use the proper sort of label, viz., stout zinc, and use the proper sort of ink, say fourteen grains bichloride of platinum in 1 oz. water, he need never fear to lose names. In my

case it is not the names, but the plants themselves I lose. I believe the failure of many with zinc labels is that they do not adhere to the following rules: First, the ink must be of good quality, such as I have described, and not the weak, ready-made-up sort sold as "indelible ink"; second, the zinc should be stout and of sufficient length to go well with the ground; and third, the surface must be bright before using, which is effected by means of fine emery paper. The labels I principally use are 9 in. long, and cost 2s. 9d. per 100; but a friend lately got 1000 of a thinner quality and 7 in. long which cost only 1s. 6d. per 100, or the same price as many nurserymen charge for wood. It is about fifteen years since I began to use these labels, and I have some of the original ones yet as legible as when they were written.—P. NEILL FRASER, Rockville, Murrayfield, Edinburgh.

INDOOR GARDEN.

CINERARIAS FROM CUTTINGS AND SEED.

So good are Cinerarias at the present time, and so fine do they come from seed, that named sorts are hardly worth attention, and yet occasionally some turn out so remarkable that one feels loth to lose them. In cases in which there is a desire to keep them, the plants, when they go out of bloom, should be set in a cold frame, or, better still, turned out of their pots and plunged in the same in leaf-mould, which, as they root in it, will induce them to start afresh and send out numerous side shoots or suckers. These, if taken off with care and treated well, will make fine plants by the autumn. To give them a fair start and encourage them to do this, they should be potted in light, rich soil in small pots and placed in a pit or frame where they can be kept shaded and close and warm for a week or ten days, by which time they will need a little fresh air. The best situation for Cinerarias in summer is where they can have natural shade, such as that afforded by trees or a building, as thus circumstanced they can with much less attention be kept more uniform than otherwise could be, both as to heat and to moisture. To secure plenty of the latter, which is an essential point, the frame in which they are intended to grow should be placed on the ground, over which it is necessary to spread 3 in. or 4 in. of coal ashes to keep out worms. What interferes with the welfare of Cinerarias more than anything else, unless well looked after, is red spider, to prevent which the plant should be heavily syringed or sprinkled overhead with water on the afternoons of hot, sunny days. If green-fly makes its appearance, fumigation with Tobacco smoke is the only remedy, but this needs to be done with great care and only when the leaves are dry, as they are very susceptible of injury if at all damp or an over-dose of smoke is applied. The safest way is to give a little night and morning for two or three days, which will dislodge the aphid without affecting the plants. To keep the latter growing steadily they must be shifted whenever they require more pot room, and they should never be allowed to suffer from want of water. As seedlings require precisely the same treatment, it will be going over the same ground to refer to these further than to say that to have them in bloom early seed should be sown at once, and, for succession, again about the end of April or middle of May. For the first batch a little artificial heat will be necessary to get them up and nurse them on. The heat most congenial to them is that afforded by a bed of fermenting manure, as the moisture arising therefrom causes a quick, healthy growth. The soil most suited to Cinerarias throughout all their stages is one composed principally of leaf-mould and loam in about equal proportions, in which they root freely, and attain such a size and strength as to yield very fine heads of bloom.

S. D.

Single Dahlias from seed.—About a month ago we sowed a quantity of single Dahlia seed of our own saving. Many young plants soon appeared, and they are now about 3 in. high. From this I

conclude that Dahlias are very easily raised from seed. Those, therefore, who may be short of plants might soon have plenty of seed if sown at once. Well drained pots, a light, sandy soil, and a temperature of about 60° are the conditions under which ours have come forward so quickly.—J. MUIR.

CLIMBERS FOR A VINERY ROOF.

I WOULD strongly advise "A. L." to plant *Maréchal Niel* and *Gloire de Dijon* Roses to clothe the roof of his old vinery. There is nothing equal to them for cutting from, and if all the flowers are not wanted for home use, they may be sold in the market, where, if sent early, they often fetch as much as ten or twelve shillings a dozen, and seldom less than half these sums any time before others come in from the open ground. Other sorts, such as *Solfaterre*, *Celine Forrestier*, and *Climbing Devoniensis*, may also be grown, but none are so useful or yield such a return as the two just named. If they are trained thinly, there will be plenty of light for beds of Teas under them. Amongst the latter, those that meet with the readiest sale are *Isabella Sprunt* and *Niphetos*, both of which are great favourites for working up into button-hole and other bouquets. To give the plants a fair start, the soil in which they are to be planted should be well broken up, and have a good dressing of thoroughly rotten manure worked in, and when the roots are spread out, it will be a great help to the plants if some fresh loam is added to cover them over. After this is done, a good watering should be given to settle the earth about them, and if then mulched, the roots will go rapidly to work, and a fine top growth will be the result. Much watchfulness will be requisite to keep the young shoots free from green fly, but by an occasional syringing with a wash made from nicotine soap, this may be easily done, as also by dusting the points now and then with ground Tobacco, which causes the aphid to drop. To encourage growth as much as possible, the house should be closed early in the afternoon, and the floor be well damped down by sprinkling it with water and the plants syringed, as a moist atmosphere and a good leaf washing are essential to keep them in health. In selecting plants of *Maréchal Niel*, it is always advisable to choose those on their own roots, as when worked on stocks they have a provoking way of forming a great knot and going off at the junction. I have lost several through this, and I know of many more that are looking very gouty, and are fast failing in strength. The growth of unworked plants is not quite so free, perhaps, but they are always much longer lived. By planting at once "A. L." will have all the season before him, and with fair success may look forward to nearly filling his house. To do this quickly, more plants may be put in than will be wanted ultimately, as they can easily be cut away when the permanent ones require the room. If there is a raised bed in the house all the better for the Teas, as Roses require plenty of air and light, and should therefore be got well up to the glass. D. S.

SHORT NOTES—INDOOR.

Nicotiana affinis.—The time of flowering of this plant is not over; if it is growing in a genial temperature it ought soon to show signs of flowering. We have several in bloom, and others are throwing up their spikes. They have been growing in a temperature of from 55° to 60°.—L.

Myrtles in pots.—J. H. O. (p. 158).—The large-leaved Myrtle will flower freely in pots when it has attained a good size, but to ensure flowering it should be kept somewhat pot-bound. A cool greenhouse will suit it better than a warm vinery. The small-leaved kind I have not tried, but it would probably succeed treated like the other.—J. HUDSON.

Gardenias.—In reply to "B. Z." (p. 158), allow me to say that Gardenias should be grown in a moist heat varying from 60° to 80°. The soil that suits them best is three parts peat and the rest loam; they do better planted out than in pots, as they do not like confinement. While in active growth they should be syringed two or three times a day.—P. L.

NOTES FROM SWANLEY.

No matter at what season a visit is paid to the nurseries of Messrs. Cannell, one can invariably find one or more classes of popular plants in flower. Throughout the winter the houses devoted to zonal Pelargoniums, both single and double, are aglow with bloom as fine almost as at midsummer. Early in the year the

CHINESE PRIMROSES made a marvellous display, and though now for the most part past their best, some sorts, such as *Swanley Red* and *Swanley White*, are still in perfection, not as small nursery stock plants, but in the shape of large, fully developed specimens, forming pyramids of bloom well above the foliage. Two new sorts are particularly noteworthy just now, viz., *The Queen* and *The Emperor*. The former has uncommonly large and full flowers almost pure white, and with fine crimped margins. The Emperor has likewise remarkably large and well-formed blooms of great substance and of a deep rose-pink. The habit of both is unusually strong and vigorous, and they seem altogether typical of a distinct strain. The probabilities that we shall soon have blue and yellow Chinese Primulas are by no means so obscure as some may think, for here may be seen a purple-blue variety, the nearest approach to blue yet obtained, and another with such a remarkably large yellow centre that the flower may be best described as yellow and edged with white.

THE PERSIAN CYCLAMENS are in the height of perfection, and the effect of a houseful (100 ft. in length) of plants covered with blossoms of various shades may be better imagined than described. The pure white form makes a grand array of bloom, and here it is grown to perfection. The aim of this firm with regard to the Cyclamen is to obtain strong sturdy growth, short, stout flower-stems, large flowers of fine form and substance and plenty of them. By careful selection and hybridising these qualities are rapidly becoming more apparent in the collection, and, judging by the thousands of young plants from last year's seeds, this nursery will shortly become one of the centres of Cyclamen culture, the houses and situation being apparently well suited to them.

CINERARIAS are just unfolding their gorgeous colours, and no doubt by this time the houses devoted to them present a brilliant aspect. One of the most striking illustrations of the march of progress with regard to floriculture may be seen among these Cinerarias. Here on one side of the house is a group of plants of the wild species, *Cineraria cruenta*, from which the garden varieties have been obtained, and the contrast between the unsymmetrical starry blossoms on the one hand, and the large circular blooms on the other is remarkably striking. The colour of *C. cruenta* is bright pink, and though the flowers individually are poor, the effect of the plants en masse is good, the more slender growth setting them off to advantage. The other varieties are very numerous, and comprise a wonderful variety of colour, and the plants, being all of large size and grown as well as they can be, make a brilliant show. The acme of perfection among them is the variety called *March Past*, which last year was awarded a first-class certificate. The flowers are from 2½ in. to 3 in. across, the broad florets overlapping at their edges, forming a perfect circle. The colour is a rich velvety maroon, inclined to purple, encircling a broad pure white ring around the dark centre. This variety is propagated largely by means of cuttings and the numerous plants of it intermingled with the general collection may be singled out at a glance—a proof of its distinct evenness. The double Cinerarias, of which there are now several varie-

Himalayan Primroses, pot Marigolds, Forget-me-nots, Anemones, Grape Hyacinths, Violets, Heaths, and Primroses have the freshness of the hills in the county whence they come. Among them is the beautiful leaf of the Heuchera, which we noticed in autumn—the leaf which lasts so long in water, and has such a fine dark olive-green colour. It is in good order for many months, and will be an aid to those who have many cut flowers, the plant being so hardy and so easily grown.

THE FANCY POLYANTHUS.—From Mr. George, Muirhead, in Berwickshire, come some interesting examples of what is called the fancy Polyanthus, which, however, seems to have some of the Primrose in it. The flowers have in some cases a margin of lemon-yellow, and in nearly every instance are prettily marked. The variegated forms of such plants are, however, scarcely so good as the selfs and the purer colours.

SPRING FLOWERS, says Mr. Archer-Hind, writing from South Devon, are passing away rapidly; already many are gone, such as *Scilla bifolia*, *bifolia alba*, *rubra*, and *carnea*. I send the last of *S. bifolia*, a late small form, and also the following, viz.:—

Anemones of many kinds	<i>Narcissus angustifolius</i>
double and single	<i>obvallaris</i>
<i>coronaria</i>	<i>clodrus</i> , double (Queen
<i>clitella</i>	Anne's Jonquil)
<i>multifida</i>	<i>capax</i> (Queen Anne's Daffodil)
<i>polypetala</i>	
<i>apennina</i> , early	<i>Pseudo Narcissus</i> , with
late	double trumpet (wild)
<i>coronaria</i>	<i>Pseudo Narcissus</i> , with
<i>coronaria glauca</i>	entire flower doubled
<i>Epidendrum rubrum</i>	(wild also, but less
<i>clitellum</i>	frequent)
<i>Erythronium</i> , pink	<i>incomparabilis aurantiac</i>
white	(dark)
<i>Ecronocarpus scaber</i>	<i>incomparabilis argenteus</i>
<i>Iris tuberosa</i> (found in many	(pale)
hedges in Devon and	<i>Primula c. allis (patpeta'n)</i>
Cornwall)	<i>rosea</i>
<i>caucasica</i> (new to me)	<i>o'd blue</i>
<i>Muscari botryoides</i> , blue	<i>Puschkinia scilloides</i>
b., white	<i>Fulmonia</i>
<i>palidum</i>	<i>Ornithogalum nutans</i> and
<i>moschatum</i>	<i>tenifolium</i>
<i>racemosum</i>	<i>Omphalodes verna</i>
<i>paradoxum</i>	<i>Saxifraga (ymbalaria</i>
<i>Narcissus incomparabilis</i>	<i>Scilla italica</i>
<i>ambilis</i>	<i>bifolia</i> (small)
<i>Stella</i>	<i>Synanthium</i>
<i>princeps</i>	<i>Tulipa sylvestris</i> (wild Tulip)
<i>Maclea</i>	<i>Triteleia conspicua</i>
<i>juncifolia</i>	<i>ilicina</i>
<i>odoratus calathinus</i>	Wallflowers, single yellow
<i>rugulosus</i>	double yellow
<i>cernuus</i>	<i>Heliborus colchicus</i>
<i>moschatus</i>	<i>abasicus</i>
major	<i>guttatus</i> (form of
<i>Jonquilla</i> (single)	<i>antiquorum</i>
<i>trianthus</i>	<i>argutifolius</i> and a few
<i>Paper White Pol. Nar.</i>	others, but they are
	past their best.

Anemone blanda has been in flower since January 8, and *Heliborus* of one kind or other since the autumn. I have so often named the *Heliborus* that I shall now only call attention to one, viz., *Heliborus antiquorum*, and that because this name has been misapplied. The real *antiquorum*, if I am right, is white with a shade of green, no spots, and always with more or less pink on the sepals; sepals pointed and not much imbricated; differs from *orientalis*, its nearest neighbour. *Orientalis* is a coarse plant, with more green, more pink or purple, more imbricated flowers, and pendulous.

THE SNAKE-HEAD IRIS (I. tuberosa).—This is so unlike our ordinary spring flowers, that it is pleasant to see it among them. It is not by any means a showy flower, but with its curious delicate sage-green and rich dark lip it is a beautiful one when we closely regard it. It comes from the New Plant Company, at Colchester. A quiet nook among shrubs would suit it best. A little colony of it naturalised would not be amiss in a warm copse. It may be well

to say it is not a new, but a very old, plant, and, if we mistake not, it has naturalised itself in a few places.

IRIS CAUCASICA.—We do not know whether this has vigour enough to form a good English garden plant, but its delicate lemon-yellow colour and rich gold lip, and the beautiful satiny look of the central parts, have a charm for lovers of things that are called good in colour. From the New Plant Company.

CAMELIAS come to us in charming condition from Mr. J. Mathison, Addington, near Winslow, mostly of the double white, but among them a singular instance of a white flower and a red one on the same branch, and that without any budding or grafting. Mr. Mathison says, "We have a very fine double white Camellia in the conservatory at the present moment, and there might have been on any day for the past ten days as many as 200 or 300 fine flowers like the specimens sent seen on it at one time. The curious part of the thing is to find on the end of a shoot almost at the top of the tree (which is about 10 ft. high and as much in diameter) a red flower. I never saw one on it before. Now and then I have seen a blotch of red, but that is all."

MARKET GARDENS.

Potatoes.—We may fully expect that large breadths of Potatoes for market will be planted this spring, as not only are the stocks remarkably cheap, but the soil is in the best possible condition for planting. Market growers are favoured beyond other Potato growers, because they can run their crops into market without waiting for them to ripen, and often have cleared off the entire produce of many acres long before the seed stock grower has lifted his crops. The seed grower or buyer has to take many risks, and the present season shows that these are large, because, unless planting is done on a scale far beyond precedent, there will be vast quantities of seed tubers that will be useless. The market growers, therefore, having their choice of such kinds as Myatt's Ash-leaf, Schoolmaster, Magnum Bonum, Victorias, Champions, and similar kinds at the most nominal prices, can plant largely and cheaply, so that it will be his own fault if he does not make hay whilst the sun shines. The chief danger is the present temptation to plant early. If we could ensure freedom from frost during April and May it would be safe enough, but there is too much reason to fear, judging by the nature of former springs, that we may have keen, biting winds and nipping frosts during these months. If these visitations catch the Potato plants above the ground, so much harm is done that 30 per cent. is taken off the crop at once.

Winter greens.—There appears to be but a short season in store for all kinds of greens, for all bid fair to be a month earlier than usual in starting into bloom; therefore we shall probably see very little, if any, standing after Easter. Even Turnips have become all tops and, although the bulbs are yet being sent largely to market, they are just getting into the woolly stage, and will soon be useless. Greens of all kinds are, like Potatoes, comparatively a drug in the market. There is such abundance of them, that it hardly pays to cut them; still, any price is better than ploughing the crop in, as loading back from town with manure is not unprofitable. We have again the same complaint about the poor prices paid by the dealers for vegetables, and the high charges made to consumers. One grower recently mentioned that having put down good Spinach at a shop at 1s. 6d. per bushel, the dealer forthwith proceeded to sell this same Spinach at 6d. per lb., which represents a profit of about two hundred per cent. The dealers always thrive and make money, whilst the grower, under the heavy burden of rent, labour,

rates, taxes, manure, seed, and many other expenses, manages to get along, but seldom grows rich. One result of this rapid clearance of green crops from the ground will be the getting in earlier and with more deliberation of summer crops—especially of Peas and Potatoes—probably the most profitable crops on the average that can be grown, for Peas are universally liked and consumed, whilst with reference to Potatoes we can at least hold our own in the markets when the supply is good and ample. Foreigners have probably found the present season for them a bad one, and those who in previous years have found a profitable time of it in supplying the English market must have found their stocks a heavy drag.

New markets for London growers.

—The London and North-Western Railway Company has just made arrangements by which our London market growers, and those of West Middlesex especially, can be put into connection with the vast consuming constituency of Lancashire and other northern districts. The connection of the company through the central station

Kew Bridge with western market gardens enables them to offer to transfer loaded vegetable and fruit waggons from that locale placed there on the previous afternoon to the markets of all the chief populous towns in their northern district in time for the next morning's markets. This will injure the middlemen; although at present much of the products sent into the London markets are sent on to the north, yet it is almost exclusively done by large dealers, who take the risks and the profits. Through the instrumentality of the railway company, however, growers may consign loads of garden produce direct to their own salesmen, just as is done in London, and Manchester and Liverpool will probably soon see Middlesex-grown vegetables in abundance. It must be admitted, however, that this is not quite a sensible proceeding, because London market gardeners are so placed that they may find in the vast, but near, metropolis a ready market for the sale of their produce. Because of this contiguity the owners pay heavier rents and rates and greater pay for labour than they would have to pay in more strictly rural districts. It therefore becomes obvious that a market grower, say in the lower part of Herts, would have great advantages over the Middlesex growers in supplying the northern market, as rent, rates, and labour would be much cheaper, whilst the carriage to market would be so much less; and London manure might be brought to him by rail almost as cheaply as it can now be purchased twelve or fifteen miles from London. Some day, perhaps, it will be recognised that we ought to have large markets for the sale of country-grown produce at the metropolitan depots of every great railway, and when these are established London will be far more cheaply and efficiently fed than it is at present.

A. D.

Boiled lime.—In reply to "M. B.A." (p. 138), allow me to say that boiled lime is possibly a local term. It is lime in a putty-like state as prepared by plasterers by mixing the unslaked lime with water by which the boiling process is started. The boiled lime to which I referred in my remarks on "soils for alpine plants" (p. 91) is, however, different from this, as I stated it to be "lime boiled and richly charged with animal hair and other animal matter," my object being to show that lime in that form when mixed with plant food of that sort did not prove to be objectionable even to plants commonly believed to dislike lime, but rather that such as I had experimented upon appeared to enjoy what I may term "manurial lime." What I used was tanner's refuse lime, and is composed of lime slaked in tanks, which, whilst in a boiling state, receives the hides and cleanses them of hair and other matter; that is what I used after having it well dried, and I imagine that when the animal parts become exhausted the lime may possibly assert itself as lime. Be that as it may, the effect on plant growth is surprising, especially in that of some species.—J. Wood, *Kirkstall*.

GLASNEVIN IN WINTER.

It is pleasant to have anything prosperous in Ireland now-a-days, and certainly the Glasnevin Botanic Gardens may be so called, not only on account of the large and increasing number of people to whom they give pleasure, as shown by last year's report, but from the appearance and wonderful variety of plants grown there. In house after house each particular plant seems to have the special treatment that suits it. The display of Orchids was equally bright when seen in December and February, and, curiously enough, though the greater number of those in flower are arranged opposite the entrance to one of the houses, the constant opening and shutting of the door in winter evidently does them no harm. Early in February there were some beautiful New Holland plants in blossom, including amongst them *Boronia pinnata*, pale pink; *Bauera sessiliflora*, mauve; *Eriostemon scabrum*, *E. densiflorum*, *E. myopoides*, *Tremandra ericoides hirsuta*, *Pultenea stricta*, and *Acacia marginata*, the latter about 12 ft. high, and bearing plumes of light yellow flowers. Amongst other indoor plants in blossom (and well worth growing in even small collections, be they ever so choice) is *Sparmannia africana*, in blossom last December, as well as in February; *Euphorbia punicea*, *Franseria eximia*, and *Monochetum ensiferum*, the latter

4 ft. by rooting the stem above the ground in a zinc tub or case filled with peat and sand, and then cutting off the stem beneath it. Not even a leaf was injured. Other kinds of Ferns also grow luxuriantly; for instance, *Adiantum polyphyllum* is over 4 ft. through, and so is *Nephrolepis davallioides furcata*. *Didymochloa laulata*, with deep green shining leaves, is about 3 ft. high, as is also *Selaginella caulescens*. Amongst plant curiosities at Glasnevin may be mentioned some *Lycopodiums*, which remind one more of fossil than of present-day plants. These are *L. laxum*, *L. ilicifolium*, and *L. phlegmarium*, &c.; the latter somewhat resembles a *Ulex*. C. M. OWEN.

A GARDEN SCENE.

THE accompanying engraving, reproduced from a photograph taken in Mr. Miles' garden at Bingham, shows an interesting aspect of garden vegetation. Though not a large garden, and though what is done is mostly what may be called flower gardening proper, there is one part of a border surrounding the little lawn where some resemblance to wild gardening may be seen. Its merits consist in the beautifully broken effect of the Foxgloves and like plants, which vary so well the ordinary formal level

are so hot and the water so warm, that it must materially hasten the growth and flowering of the plants. Of its hardness there can, as I have said, be no doubt whatever, provided the roots are below the reach of frost; and as to its flowering, it may be as free as it is in our climate. It is well, with all the care that can be given, to have a full and fair trial. The seeds vegetate freely, and I have already young seedlings 2 in. high.

CARNIVOROUS PLANTS.—In a late number of *THE GARDEN* you copy Mr. Peter Henderson's remarks recently made before the New York Horticultural Society entitled "Popular Errors in Horticulture." Like all that Mr. Henderson has to say, they are entertaining, instructive, and suggestive. His experiments with carnivorous plants correspond precisely with my own, which I have already given in *THE GARDEN*. They in no way afford the shadow of a proof that the plants digest the insects, or that they are essential to their growth. Yet, as he says, Mr. Darwin wrote 400 pages to prove the fact. On a recent visit to Mr. Henderson we discussed this subject, and were quite in accord as to the facts, and I was pleased to see his brief essay in *THE GARDEN*.

AMERICAN ASTERS.—Mr. Wolley Dod alludes to our native Asters, which are in their prime with him in November, notwithstanding the severe frosts of October. He also states that he "knows of twenty distinct kinds well worth growing," and is always looking out for more; that there is not sufficient commerce in Asters with America where they are more likely to be raised from seed and choice varieties obtained, and he thinks, "perhaps Mr. Hovey could tell him something about this." Well, I can give him very little information about seedling Asters and the production of new varieties, but I can tell him that our native Asters are so abundant in our fields and pastures throughout August and September, strewn along the edges of woods, and over every open space—one dense mass of blossoms, that scarcely any one thinks of cultivating them, except the large and showy *A. Nova-Angliae* and its varieties. At the Cambridge Botanic Gardens, however, there is a fine collection, but I know of scarcely a private garden containing half-a-dozen species or varieties; in fact, so many of them resemble each other that there are few persons who can distinguish the species. In our own grounds some five or six species are indigenous and come up every year whenever the ground is left undisturbed. Dr. Gray, in his botany, describes from thirty to forty species, and I think I have seen a great many of them—such as are indigenous to Massachusetts—growing in a very limited space in the southern part of the State, of all sizes of plants, as well as of flowers, and of all colours, from white to the brightest blue, the tallest (*A. umbellatus*) towering up 6 ft. to 8 ft. among promiscuous shrubbery, and the lovely dwarf blue (*A. spectabilis*), like the most beautiful *Cineraria*, covering hundreds of feet of a drifting sand, where there was scarcely any other vegetation. Probably Mr. Falconer could send Mr. Wolley Dod seeds of some of our best Asters rightly named. Undoubtedly there are a great many native varieties, for in looking once at a field of thousands of plants, it seemed as if there were scarcely two alike, running into every shade of colour from pinkish blue to violet-purple. They are well worth introduction to our gardens notwithstanding they are so profuse in our fields.

GRAFT HYBRIDS.—What are they? In the Transactions of the Massachusetts Horticultural Society, from which you occasionally quote, you will find my remarks (for 1880) on this subject, which embrace all that Mr. Henderson



A border in the Rectory garden at Bingham.

with bright pink flowers and curious stamens. The single white *Camellia* rivals the double ones in beauty. *Masdevallia Harryana*, with deep magenta flowers, is very beautiful, growing in a cooler house than that containing most of the Orchids now in blossom.

There is a fine collection of Hellebores, one of the most distinct of which is *H. hybridus*, in which the white perianth is striped and spotted with purple. *F. J. Heinemann* resembles it in markings, but the ground is pinkish purple. Both have much the same habit of growth as *H. olympicus*. *H. guttatus albo-grandiflorus* and *H. antiquorum* are excellent sorts. *H. laxus* is a pretty green kind, and *H. graveolens* and *atrombens* are also very good. A large bed of *Erica carnea*, and a large plant of the still prettier white form, were in full blossom, and showed their value as early spring flowers. *Cyclamen macrophyllum*, not yet in blossom, would be worth growing even for its foliage, the leaves being about 4 in. across.

Mr. Moore grows many kinds of *Rubus*, a broad border being devoted to some of the larger kinds. *R. leucodermis*, at this time of year, looks exactly as if it were whitewashed. Nothing in the gardens is more successfully grown than filmy Ferns, especially several kinds of *Todea*. A group of Tree Ferns, in a house almost entirely devoted to them, is very picturesque. One Tree Fern, which had grown too tall for the house, has been lowered

surfaces usually seen in flower gardens. Poppies and the bolder Ferns lend their aid, and the ground is quite green with dwarf plants beneath. The effect is very charming and picturesque. There is plenty of colour and much quiet grace.

NOTES FROM NEW ENGLAND.

NELUMBUM LUTEUM.—I am glad to see you are interesting your readers in this grand queen of our waters. There is not the least doubt but that you can cultivate this *Nelumbium* in England, and that it will prove perfectly hardy. The only question is, have you heat enough in summer to bring it into flower in the open air? There can be scarcely any doubt about it, especially in the south of the kingdom, as it has flowered in Paris. In the Western States near the lakes, where the frosts do not usually come as early as in New England, it ripens its seeds freely. I have now four of the large, flat pericarps filled with seeds, but here in Massachusetts the plants which flowered so beautifully the past summer did not ripen a single pod, being all killed by the severe frost of Oct. 5. This, of course, was an exceptional freeze, which never happened before in my experience, so that I do not think it likely to occur again for a long time. But our summers

says. Wherever these so-called graft hybrids have been seen otherwise than those known for so many years with variegated-leaved plants, it has been clearly proved they were simply errors or blunders in cultivation. In some recent papers published in the *Massachusetts Ploughman*, of Boston, I have shown how very natural it is to produce graft hybrids, so-called. In *THE GARDEN* (p. 531) you have a brief notice of a portion of what I stated in regard to the influence of the stock upon the scion.

FUNGUS ON IVY LEAVES.—Is it possible that your correspondent who inquires what makes his Ivy leaves covered with a substance resembling soot should not know that it is the exudations from the scale on the under side of the leaves, and nothing allied to fungus. Occasionally a few of our Camellias and Orange trees get neglected, and before we are aware of it in a large collection we find the leaves literally as black as soot. A sponge and a little water will soon cleanse them, as well as destroy the insects which cause the trouble. A fungus generally attacks the tissue of the leaves, and seriously injures plants. The sooty covering only disfigures them. C. M. HOVEY.

Boston, Mass.

FLOWER GARDEN.

CULTURE OF THE AURICULA FOR EXHIBITION.

ONE exhaustive paper, on the culture of show Auriculas for exhibition, would more easily exhaust the reader than the subject, but I will gladly give "R. T. F." (p. 126) some outlines of the treatment. If, however, he would be a successful grower—and by this I rather mean the possessor of a healthy collection, than winner of a few prizes—he must have a lasting love for the plant; a delight in its well-being as active and sincere when its leaves are fading in November, as when it is lovely in its spring foliage and blossoms. Although the Auricula is hardly beyond any extreme of cold in this country, it nevertheless decidedly likes being grown under glass, because of the shelter thus afforded it from excess of rain and wind. Auriculas are always very impatient of water lodging between the leaves, and of wet soil when changing their foliage in late autumn and at rest in winter; neither can they bear to have their leaves broken by high winds or riddled by hail. The mealy and velvety surfaces of their flowers would suffer even by the touch of a butterfly's wing, so that their bloom must needs be protected from rough weather.

AURICULA HOUSES.—Auriculas can be grown all the year round in frames, placed in a south aspect from about October 1 to May 1, and north till October again. However, they do far better and can be much more enjoyed if wintered and bloomed in a glasshouse with a sunny aspect, and fitted with ready means for the most perfect ventilation, and for tempering bright March and April sunshine to the advanced foliage and expanded blooms. Auriculas adapt themselves to almost any style of glass-architecture if only light and air have free access. Mine bloom in a lean-to house of 40 ft. by 12 ft., and many of the plants are a long way from the glass. The house is half sunk, and the glass, in large clear panes, comes down lower than the pots. The plants do not draw, or I should not have them here, though those nearest the back wall naturally turn gently from it, as, indeed, they would do were they in the open air. But if I were to build a blooming house to my full fancy for Auriculas, I would have it a half sunk span-roof, running north and south. It would require less shading, for the midday sunbeams would strike across the rafters, and throw a very kind

pretty play of changing light and shadow upon the plants. I do, and always would, have some heating power available, not for any forcing in the usual sense of the term, but for the sake of commanding a night temperature of 8° or 10° above freezing if frosts in spring were too severe to be kept out by other means. This hardy little plant cannot bear stifling or coddling in high heat and close air, but an artificial temperature of 40° or 45° is not a forcing one. I use heat as a very mild and occasional auxiliary, only in very hard weather, at a very critical time; and I would the more emphasise the place this last resource may hold in high culture of the Auricula, because that, together with several other growers, I have been supposed to broadly favour artificial heat for Auriculas, which I do not. After repeatedly failing to make this conditional and exceptional use of it understood by writers and talkers on the flower, I try to explain myself once more. I keep this resource at hand much as one would a fire-engine, having it ready for its own emergency, and thankful enough to have no use for it.

SOIL FOR AURICULAS.—To beginners, the question of compost for Auriculas will naturally seem a leading one. Certainly it is important, and yet but simple here—much simpler really than the records of the old florists fifty years ago make it appear. To them the question was large, open, vexed, and complex—many men, many minds, and many messes! Their compounds would be more like quack medicines for sick vegetables than food for healthy plants, and could not be used till honest Nature had partly toned the crudeness down by the mellowing touch of time. The safest foundation of an Auricula compost is a fibrous yellow loam of medium strength, from a field, if that may be, where the kindred Cowslip grows. Quite half the compost may be this, with a fourth of decayed leaves, not so far gone as to be mere black earth. The remaining quarter may be from a mellow old hotbed, and coarse, sharp grit, or charcoal like split Peas. This is the richest I am using, and most is not so rich. Other composts suit Auriculas in which the texture of the loam varies (I never tried peat), and in all of them it is safer not to make too much of the manure. With good fibry loam for the staple, I have left out here the manure and there the leaf-mould with such equally good results, that I have grown inexact in these last measurements of fatness. The chief thing is a sound, nutritious, acceptable, natural soil, with openness and perfect drainage. In this the plants live a calm and healthy, vigorous, and long life, with a refined and brilliant bloom.

POTS AND REPOTTING.—One important cultural point with the Auricula is the size of the pot; it is best small. The plants never do so well as when the roots get netted round the sides and into the whole ball of earth. A splendid plant will seem to have almost eaten up the short allowance, and will have worked into the abundant drainage till all is held together by a white lace of fibres. I always try how small a pot a plant will take, and very many of my best are in pots 4 in. wide; some are in 4½-in. pots, and a very few in 5-in. pots. From pots we pass to repotting—a standing rule in Auricula culture—annual, at least, for full grown plants, and occasional for younger ones, according to their requirements. Opinions vary as to the best time for this general operation. Some growers repot late, by which is meant having the plants in their new compost by the first week in August, at which time the Auricula is awaking from its midsummer rest to throw off its loose and careless summer dress for a more distinctive habit. Of this the inner foliage will remain thick and short to form the stout and hardy winter habit, for, like a ship under storm canvas, with all her light spars and sails for summer breezes sent

down, the Auricula carries in the winter no wide spread of leaf. Autumn potting is, no doubt, safe, since the plants are disturbed at a time when root action is lively, and soon establish themselves afresh. It is supposed, also, to be one means of checking the evil habit the Auricula has, as one of the Primulas, of blooming in autumn. This is a theory not borne out by fact. I know that collections potted late have bloomed extravagantly in autumn. Nothing will entirely prevent it, and certainly not late potting. One way of lessening this tendency, which has such ill effects upon the spring bloom, is not to grow the varieties most given to it, and to raise seedlings from none such. Another precaution of great importance is to keep the plants as cool as possible in summer and autumn, with the soil at no extremes of wet or dry, with a most free supply of fresh air, and no sunshine of any power. In all fine weather they may safely be left exposed. They love the cool refreshment of the dew, and in a clear north aspect it will linger on them many hours into a summer's day.

The other recognised time for repotting is as the plants pass out of bloom. They never strike fresh root with greater eagerness than at this period, and I have invariably chosen it in my own practice. It has been objected that this gives time for repeated waterings to wash richness out of the soil before the next year's bloom. There might be truth in it if the water came from the bottom of a well—but it is rather too hard upon soft water (of course the plants are fed from the rain tub, and not the pump) to suppose that rain water washes all goodness out and no goodness in. Besides which, Auriculas should not be so situated as to require "repeated waterings." There is practically no hard and fast time for repotting them. Some plants in a large collection are always wanting it, and it is the first thing to do at any time if a plant is going wrong through some mischief not in sight. They should not be planted deeper than the base of the leaves, and all dead fibres and diseased or lifeless stems with inactive roots should be removed, and the soil made tolerably firm in the pots.

TOP-DRESSING, as the spring growth commences, is another standing order in Auricula culture. As a rule, the compost used for this is rather richer than that for potting, and a little of the top soil is carefully removed, so as not to break any roots, and the space is filled in firmly with the fresh earth. When the plants are vigorous enough, and the soil therefore satisfactory enough in which they have been working, I do not think any surface enrichment needful. Of late years I have used only the usual potting compost for top-dressing, and often not even that, unless the soil has become liable to Moss. The class of the flower known as the "Self" has a naturally freer habit of growth, and not such a difficult character to maintain as the green, grey, and white edges, and may be both potted and top-dressed in simpler composts.

THE PROPAGATION by offsets is not difficult. They may be taken off in spring, summer, and autumn as soon as they possess a little heel or stem of their own. It matters little whether or not they are rooted at the time. If they are, they may be potted off at once; and if not, may be easily rooted in boxes covered with a pane of glass to keep the moisture in. They strike quickest, not in soil, but in some very open medium, such as fine ashes or sawdust. Care must be taken that the foliage is not wetted under this close confinement. Decaying leaves must be removed, and the young plants taken out when their growth shows that they have rooted.

INSECT PESTS.—The commonest enemy of the plant is the green fly—apt to be troublesome at

all times, and best kept under by dipping the foliage in a pailful of rain-water with soft soap about the size of a common hen's egg dissolved in it. It is imperative that the foliage be always kept clear of any insect life. Caterpillars may attack the leaves, and can only be got rid of by hand-picking. A dark tough maggot sometimes bores into the heart, completely destroying it, and may be known by the weaving of a faint, dirty grey web over the inner leaves. The woolly aphid (*Trama auriculae*), now abundant in some collections, is puzzling. It certainly lies in contact with the plant, around the neck and along the roots. Whether it finds board as well as lodging there seems hard to say. It is impossible to think anything good of an insect so suspiciously parasitic, and yet impossible in my own experience to accuse it of perceptible mischief. With Mr. Simonite and others, and among my own plants, it has been impossible from the look of the plants to say which had, and which had not, the woolly aphid. I have seen hundreds of

made fine medium plants, enough for one good truss, and a leafy heart beyond. Second trusses are of no use; the plant that makes them is a little overgrown, and will feel the strain of the effort afterwards. There should really be no difference made between growing plants for exhibition laurels and for home satisfaction. Nothing short of the best care should be accorded this beautiful and rare flower, and therefore I cannot profess to say how little of thoughtful culture it will live under, but it will not thrive under any neglect of its homely wants. Plants that have been properly attended to since the last bloom are now in great promise and beauty. They are growing fast in warm weather or cold, and indeed the cheery lengthening of the daylight seems more of a stimulus to them than warmth. The expanding foliage must be kept scrupulously clear of green fly, and from injury by high and cold winds. When these occur with clear sunshine it will least distress the plants to shade the

manage well. The last three numbers will generally only be given by the selfs that attempt and carry more than the edged varieties. The temperature must not run into extremes while the plants are coming into bloom. If it sinks below freezing there is a danger that the thick petals of the edged flowers will be set, and the flowers die without expanding fully. Heat above 70°, if artificial, is also injurious, hastening flowers over that are in bloom, and in bud destroying the texture of the tube and throat, so that again the flower is set, and dies small and early.

PACKING.—In final preparation for a show comes the packing—a delicate work with Auriculas, since the slightest contact of one flower with another will blur the touching surfaces with an indelible stain. If they can be taken in their pots all the better; but if not, the ball of earth that will not readily leave the roots may be tied up in damp Moss or a piece of wetted linen. The stem must be secured to a slight support as high as the crown of bloom, and each separate flower parted from its fellows by a light puff of cotton wool. The plants should be packed firmly in a box made to open at the side, to be carried by hand, and never to be trusted on road or rail out of the owner's tenderest care. The fatigues of exhibition tell upon the blooms, and they do not afterwards last long in beauty. Sometimes the finger of the stranger has poked them in the eye, in curiosity to see whether the meal comes off. It does!

F. D. HORNER.

Kirkby Malzeard, Ripon.

THE VIRGINIAN POKE. (*PHYTOLACCA DECANDRA*.)

THIS is a stout, vigorous-growing herbaceous perennial, which reaches a height of 5 ft. or 6 ft., and bears numerous wide-spreading branches, the leaves on which are about 6 in. in length and 2 in. or 3 in. in breadth. The flowers, which are produced in long pendulous racemes, are succeeded by berries of a blackish purple colour, which, when in perfection, render the plant very ornamental. The juice of the berries, which is of a beautiful purple colour, is employed to impart a deep rich tint to wines, and the young shoots, cooked like Asparagus, are eaten in America. *P. dioica* is noteworthy as forming one of the largest trees met with in the open pampas of Buenos Ayres, where, scattered over the country, it forms one of the most prominent features in the landscape. It generally occurs singly, or in groups of two or three, and forms a stout, thick trunk, the wood of which is soft and of little value. Another species, *P. icosandra*, in some of the tropical regions of the western hemisphere, is one of the first plants to spring up wherever the ground has been cleared. Its young shoots, like those of the Virginian Poke, are also gathered and eaten. Several other *Phytolaccas* are widely distributed throughout the Tropics, where they form stout herbaceous plants of but little beauty. With as their cultural requirements consist in giving them a good deep soil, and as seed is readily obtainable, there is seldom need to propagate them by means of cuttings, although they may be increased readily enough in that way. H. P.

PLANTAIN LILIES.

(*FUNKIAS*.)

THESE among herbaceous plants take a leading position, as not only are they remarkable for fine foliage, but most of them bear fine, tall spikes of large Lily-like flowers. The most striking among them is *F. Sieboldi*, which has massive, thick leaves, of a deep glaucous green, especially when grown in the shade. In rich soil this variety forms a noble object in clumps on lawns, and it is equally fine for the sub-tropical garden, or for associating with hardy Ferns, among which it is quite unique, and produces a striking effect. As a pot plant for early forcing to stand in conspicuous places in a greenhouse or conservatory it is



Virginian Poke (*Phytolacca decandra*).

plants in the brightest health and vigour on the roots of which were countless specimens of this dirty insect. We kill them how and when we can, but have not succeeded in abolishing them, and they are beyond all doubt the insect named. Red spider will attack Auriculas, but only if they are kept too dry and hot, which would be such gross mistreatment, that the punishment of this pest should never be incurred.

In DISEASES the Auricula is chiefly liable to canker and rot; and the only way is to cut out every trace of the affection and dress the wound with some styptic, such as powdered charcoal or the ashes of a leisure pipe. Place the plant in fresh soil and give as little water as possible till it is recovered.

SELECTION AND TREATMENT.—The plants from which to choose in hopes of the best bloom are not the very large ones, and not the very old. As a rule those will bloom in their best form this year which were just able to give two or three flowers last season, or even missing altogether, should by this time have

house and open the lights under the shading, for the plants will not bear bright sun without a circulation of air. Under glass neither stems nor foliage will be drawn if properly grown. I may say for myself that the heads would and do stand without sticks. These, however, are allowed at the southern show, and where not obtrusive they do not look conspicuous, and are a convenience for saving short and valuable time.

THINNING THE BUDS.—As the buds begin to separate on the rising stems, it is very important to thin them more or less. This should be done gradually, with all judgment and care. Small ones that lie under the medium and well rounded ones may be taken out, and also any disproportionately large or very oval pips. The object is to have a symmetrical head of equal flowers round and flat, and not so crowded that they overlap each other. A truss of less than five pips should not be shown on a large plant; seven is fair, nine is good, eleven excellent, and twelve or thirteen as many as any plant can

also very valuable, as few stove plants can rival it in beauty of foliage, and being so hardy it stands well, and may be made to do duty at a time when it would be unsafe to trust any of the more tender subjects in a low temperature. The next in point of merit is *F. subcordata grandiflora*, which has large, light green leaves and pure white flowers. For freedom of bloom, *F. ovata* is one of the best, as where well established it sends up numerous spikes, laden with well established pendent purplish blossoms. There are also variegated varieties of this, one having the foliage margined with white, and another, named *univittata*, marked up the middle. *F. ovata aurea variegata* and *ovata elegans* are both beautiful in a young state, and particularly so when forced, as then the colours are more delicate than in the open air. All the different kinds of *Funkias* may be readily increased by division, the best time for effecting this being the present, as now when they are starting into growth they heal readily where severed, and are not likely to rot. *Funkias* will grow freely in almost any kind of soil, but to have the fine foliaged sorts at their best they should be planted in rich, deep ground, where they can get plenty of moisture. The way to manage them in pots is to dig up clumps from the border, any time during the winter or spring, and pot them, when they may at once be introduced into gentle heat, which will soon bring them on. For supplying cut flowers, *F. speciosa* and *F. ovata* are the best, as the spikes and blooms are of medium size and dress vases well.

S. D.

ALPINE PLANTS AND SOILS.

SOIL, I would observe, only plays one part as regards the culture of alpine, and although it should be the best we can get for each particular plant, other conditions must be in harmony with it, or failure will be the result. Of this many instances have come under my notice. For instance, two plants of one kind have differed considerably in the same garden, and that not many yards apart. I especially noticed this in the case of *Phlox Nelsoni* and *P. setacea atropurpurea*. At the present time I have *P. Nelsoni* and *P. setacea atropurpurea* growing under precisely the same conditions side by side, yet *Nelsoni* absolutely refuses to grow, and *atropurpurea* is growing so luxuriantly as to threaten to overwhelm its neighbour. When living near Chester some three years ago this was exactly the reverse; *P. Nelsoni* would grow in any soil or situation, while *P. setacea atropurpurea* refused to grow, no matter in what situation or soil I chose to place it. These, though only common-place plants, were evidently influenced by other conditions beside that of the soil. Referring to Mr. Ewbank's note (p. 54), I see that *Saxifraga Burseriana*, *Gentiana pumila*, and *Ebrachanthus dalmaticus*, three choice alpine, have been growing luxuriantly in ordinary loam, and, what is more, it receives an annual dressing of manure. Such a statement is to me most encouraging, seeing that it shows many plants belonging to the alpine class may, with ordinary care, be grown with success. It also brings to my recollection the following fact: Some six years ago I gave a friend a small plant of *Saxifraga Burseriana*, and he being entirely ignorant with respect to it potted it in some soil which had been mixed for *Pelargoniums*, and which contained a good percentage of manure. Some two years afterwards I saw the plant; it was in the most robust health and covered with flower-buds. Such facts as these tend to show the utter indifference with which plants regard certain soils. Therefore I contend in the face of these facts that such elaborate soils as are prescribed by some are unnecessarily bestowed—climate, altitude, and situation must be in accordance with their requirements, and if either of these be absent, all the soil in existence will fail to supply their places. Nine-tenths of them will, in fact, succeed in any ordinary well-drained soil. To attempt to establish the idea that such and such a soil must be had for each and every plant simply means debarring many from ever attempting to grow alpine.

E. JENKINS.

SPRING BULBS.

DURING the week ending March 5, 1882, the following plants were in flower in my garden at Preston, Cirencester, either in open borders or in cold frames, which are open except during frost or heavy rain, and which, therefore, are little if any earlier than the borders. I shall be glad if any other lovers of bulbous plants can add to the list anything not generally known—

Crocus Imperati (var. from Angli, later and larger than the common var.) *suaveolens*, Rome
versicolor, S. France
minimus, Corsica
versicolor, Corsica
banaticus, Hungary
b. var. leucorhynchus a very pretty form of what is usually called *C. velutinus*
vernus var. albiflorus, Sicily
v. var. aculeus, Sicily (very distinct)
biflorus var. nubigena, Bosphorus
b. var. Weldenii, Trieste
susianus
stellatus
aureus, Bosphorus
ancrensis, Angora
carpetanus, Spain
alatavicus, C. Asia
chrysanthus, Asia Minor
c. var. albidus, Olympus
Danfordiae, Karsieh
Oliverii, Levant
Xiphion reductum, Caucasus
r. var. Regeli, Caucasus
Kolkapowskianum, C. Asia
caucasicum, Caucasus
Galanthus nivalis
n. var. Imperati, Naples
Elwesi, Asia Minor (the varieties which have been imported lately are often very inferior to the true form of this. See plate in Bot. Mag., C. 616)
plicatus, Crimea
Narcissus Pseudo-Narcissus
N. aureus
Corbularia monophylla (in greenhouse), Algiers
Leucojum vernum pulchellum
Scilla sibirica bifolia
b. var. alba
b. var. taurica, Asia Minor
Chionodoxa Lucilae, Asia Minor
Puschkinia scilloides, Caucasus (two best dwarf bulbs of their season)

Besides the above seventy-four species and varieties, which will be doubled by the end of April, I should have the following, which from some cause are not flowering this year: *Iris alata*, *I. cretensis*, a charming plant from Lycia, but rather tender; *Colchicum bulbocodioides*, *Rhinopetalum Karelini* (can any one tell me how to grow this bulb in England?), and various other obscure species of *Muscari*, *Ornithogalum*, and *Crocus*.

H. J. ELWES.

Snowdrops and other spring flowers.

—Never, perhaps, were Snowdrops seen in greater perfection than they have been this year, the continuance of mild weather having just suited them. The wonder is they are not more planted, as, being the first harbingers of spring, they are always welcome and nowhere out of place; but where, I think, they look best is on elevated positions, such as banks or mounds, nestling in clumps among the Grass. Dotted about under deciduous trees they also look quite at home, as likewise in shrubby borders, where with *Daffodils*, *Squills*, *Crocuses*, *Dog's-tooth Violets*, and a few *Forget-me-nots* and *Primroses*, the foreground may be made aglow with rich colours. If dug up bodily with plenty of earth adhering any of them may yet be planted, and *Primroses* may often be collected from woods and removed to places where they can be better seen and enjoyed.—S. D.

GARDEN FLORA.

PLATE CCCXXVIII.—STONE'S APPLE
(SYN., LODDINGTON).

THIS Apple, now largely grown in the neighbourhood of Maidstone, especially in the fruit growing district lying south-west of that town, originated on a farm at Loddington, formerly in the occupation of a Mr. Stone. After its exhibition in 1877, before the Fruit Committee of the Royal Horticultural Society, at South Kensington, where it was awarded a first-class certificate, a niece of Mr. Stone's sent me the following particulars concerning it. She stated that about sixty years previously, when staying at Bath with her uncle, they visited a local nursery, and brought from there the Apple tree, now called Loddington, which was planted in their garden. On visiting it last week I was sorry to see that some of its branches had disappeared, but it had still borne a large crop last year. I found the circumference of the trunk to be about 4 ft. and the diameter of the branches 2 ft.—a small tree considering its age, for it must be nearly seventy years old. I also saw many large trees that have been grafted with it, and that had made good heads. When grafted on big trees it does not require much attention after it commences to bear, which it does in the third or fourth year; but if grafted on smaller ones it must be constantly tipped for some years, otherwise its growth becomes stunted, owing to the continued formation of fruit spurs on the growing wood. I would recommend every one who intends to grow this variety to graft a tree with it, as well as plant one. Although largely grown in Kent, I have no doubt that it is to be found in other parts of the country, and under different names. Two dishes of it, locally grown, but not under its true name, were exhibited at Hereford last year, and not from young trees. I found it again in a fruit room a few miles from that town, and was informed that the tree from which the fruit was gathered was nearly forty years old. These Herefordshire Apples were, however, not so fine as those grown in Kent, but that I attribute to the soil, which is too good for them. The best specimens that have been exhibited, notably those shown by Mr. W. Skinner, of Boughton Monchelsea, were grown on a light hazely loam, or on a stone shatter with porous subsoil reclaimed from an open heath.

The following description of this Apple is from the "Herefordshire Pomona": "Fruit large, varying from 3 in. to 3½ in. in diameter, roundish, slightly flattened, and narrowing abruptly towards the eye; it has obtuse ribs on the sides, which become more distinct towards the eye, where they form ridges round the crown. Skin smooth and shining, grass-green at first, with a brownish red cheek, but after being gathered it becomes a fine lemon-yellow, with a pale crimson cheek, marked with broken streaks of dark crimson; the surface is strewn more or less with minute russet spots. Eye closed, with convergent leaf-like segments, set in a deep and prominently plaited or ribbed basin. Stalk ½ in. to ¾ in. long, slender for the size of the fruit, and inserted in a deep, wide, funnel-shaped cavity, lined with pale, thin, ashy russet, extending over the base of the fruit. Flesh very tender, with a pleasant sub-acid flavour." It is in season during September and October, but will keep sound nearly up to Christmas. The tree, I may add, rarely shows any inclination to canker, a valuable point in its favour.

LEWIS A. KILLICK.

Mount Pleasant, Langley.

* Drawn from fruits supplied by Mr. Killick.



STONES 'APPLE

GARDEN IN THE HOUSE.

FOLIAGE WITH CUT FLOWERS.

IN THE GARDEN (p. 110) the shoots and foliage of several plants are mentioned as being suitable for associating with cut flowers, and amongst them the Tansy is named, but although very pretty, its powerful odour is against it. The foliage of *Acacia lophantha* has been alluded to, and to this may be added the pretty dark green shoots and foliage of *A. verticillata* and the pretty sprays of *A. vestita*; and to the twigs or sprays of *Thuja Lobbi* and *Thujopsis borealis* and some of the many pretty *Retinosporas* may well be added those of *Cupressus Lawsoniana*, more especially when in bloom, its sprays then being really beautiful. Branches of *Diosma ericoides* are also well suited for the purpose, more particularly when sparsely studded with small white flowers; even, too, in the absence of these its foliage is very desirable, being deliciously fragrant, and I have known this plant grown in quantity expressly for this purpose, together with such plants as *Aloysia citrifolia*, *Myrtus communis* (common Myrtle), and *M. tenuifolia*. *Cissus discolor*, *Tradescantia zebrina*, and some of the *Coleuses* are all likewise suitable for the purpose, although not quite green. Nothing, however, sets off flowers so well as the fronds of both hardy and exotic Ferns, particularly the *Adiantums* (Maiden-hairs), such as *A. affine*, *A. cuneatum*, *A. farleyense*, &c.; but the objection to most of them is their not keeping long in water. Amongst sweet-scented *Pelargoniums* many varieties are to be found whose shoots and leaves are all that can be desired for this purpose. Take for example the Apple, Citron, Lemon, Nutmeg, Orange, Rose, and Peppermint-scented sorts, all favourites with everybody. To these may be added crispum elegantissimum, a neat variegated variety; *Kadula*, or Pheasant's-foot, a pretty Fern-like sort; *Lady Plymouth*, and *Prince of Orange*; also *Distinction*, a small-leaved neat zoned kind, with pretty dark green, distinctly zoned leaves, together with golden Harry Hiever, a variety with small zoned, bronze coloured foliage, and very useful for associating with flowers; and among suitable Ivy-leaved kinds there are *Auton*, *Bridal Wreath*, and *Elegant*, the leaves of the latter being margined with white. Moreover, among hardy herbaceous plants there are many whose leaves are suitable for this purpose, including ornamental Grasses of various sorts. Among herbaceous plants may be mentioned *Dicentra spectabilis*, *Spiraea* or *Hoteia japonica*, and the silvery shoots and foliage of *Centaurea ragulina* and *gymnocarpa*, *Cineraria acanthifolia* and *maritima*, *Gnaphalium lanatum*, *Santolina incana*, the pretty variegated *Alyssum*, and the no less pretty *Dactylis glomerata* elegantissimum, and many others, while among hardy shrubs the shoots of *Tamarix*, *Salicea* and *T. germanica* will both be found useful, and those of the Sweet Briar are indispensable, and plants of this should be always kept in pots for forcing into growth during winter, when its delicious perfume is appreciated by everyone. P. GRIEVE.

Notwithstanding what has been written respecting greenery, we seldom or never have enough of it nor a sufficient variety; hence the importance of welcoming any and every addition, such as the Tansy and *Acacia lophantha* referred to by Mr. Morgan (p. 110). No doubt the highest perfection of greenery is that which the plants themselves provide. Each flower set off by its own leaves is seen to the best advantage. But there are exceptions, and also practical difficulties that often render this impossible, and hence the necessity of using foreign foliage that shall prove at once congruous and durable. It is difficult to lay down definite rules, but skilled decorators can tell at a glance what leaves should or should not go with particular flowers. For example, neither Tansy nor *Acacia lophantha* foliage would go well with *Bouvardias* or *Stephanotis*, while Rose foliage or Maiden-hair Ferns would do with either. As to form, let anyone try to use any foliage but its own with *Magnolia grandiflora* and a difficulty

will at once present itself. On the other hand, *Rhododendron foliage* seldom goes well with the flowers when these are used in a cut state, and a few sprays of Portugal or even of common Laurel add much to the effect of arrangements of cut *Rhododendrons*. *Camellias*, again, generally look richer when partially garnished with a few fine sprigs of Rose foliage than when wholly greened with their own somewhat stiff and impracticable leaves. As to size, it is a mistake to use foliage too large for the flowers; any needful amount of greenery may be given in detail. It is seldom good taste to give it in too large single masses. Fern fronds are often used far too large; and, in regard to other leaves, it is seldom indeed that the largest are the best.

Durability is essential to the foliage or branchlets used with flowers. Few things are more annoying than to see the leaves faded while the flowers are yet fresh and beautiful. A great point is never to use foliage too young; such leaves possess a tempting freshness, but they seldom or never last as long as the flowers. Those who specially grow Ferns for greenery generally grow them in a rather low temperature; this enables Maiden-hair and other Ferns to remain fresh four times as long as they otherwise would do. In selecting Rose and other foliage only that perfected by midsummer maturity should be selected. Such plants as Tansy, Wormwood, *Coniferae* of various sorts, such as *Thujas*, *Retinosporas*, *Thujopsis*, &c., have the great merit of durability, as well as many others. *Cryptomeria elegans* also furnishes beautiful foliage; while variegated and plain *Hollies*, *Acubas*, *Spiraeas*, *Dogwoods*, &c., are well known to afford a rich variety of foliage. Among forest trees, the Spruce especially the Douglas and Menzies varieties, the Silver Firs, the Oak, and the Maple furnish an infinite variety of verdure that might be much more used than it is to the gain of artistic effect, and the saving of a great amount of more rare, and consequently more valuable, though hardly more beautiful, material.

Scents and coloured foliage.—The greenery used with flowers should be inoffensive. Some of the plants named, Tansy for example, has a bitter smell; and Parsley, otherwise a formidable rival to Ferns and *Lycopodiums* for forming verdant bases, savours rather too much of the kitchen. Even some of the *Coniferae*, otherwise unobjectionable, smell rather too strongly of rosin. It is important that the green used should be odourless, or have a neutral, or an agreeable smell. No doubt this is one chief cause of the popularity of Ferns, but there are several kinds of *Coniferae* that have a delightful odour, distinct from that of any flower, as, for example, some of the *Cypresses* and the Douglas Spruce; the latter has an odour at once full and refreshing. For large floral decorations, there are few more striking or more pleasing greens than slender twigs of this semi-weeping Spruce. Nor does there seem any good reason why all the foliage and branchlets used with flowers should be green. It seems preposterous to deny ourselves the powerful help of autumnal tints indoors. And here the shrubbery and the wood offer their richest treasures free to our hand. Such glowing leaves and branchlets as those provided by *Liquidambars*, *Virginian Creepers*, especially the *Yew*, variety, *Maples*, *Oaks*, *Elms*, *Wild Cherries*, *Mountain Ash*, *Acacias*, *Tamarisk*, *Sumach*, &c., are excellent. Some autumnal leaves have but little durability, but others have considerable persistency. Not a few Oak and Beech shoots hold their leaves throughout the winter, and a very striking and original effect is not seldom produced by a sparse use of such shoots among brilliant flowers and verdant foliage. At a distance the aspect is so unique as to impart all the effect of something strikingly novel in foliage or flower. Next to Fern fronds I have found Rose twigs the most useful and effective of all greenery, and they are so catholic in their affinities and congruities, that they will go well with anything, from the most delicate Orchids to the most gorgeous *Rhododendrons*. D. T. FISH.

Combinations of flowers.—One of the most pleasing combinations of flowers I have seen is *Dicentra spectabilis* and Solomon's Seal, the silvery bells of the one and the delicate green leaves blending most charmingly with the soft delicate pink flowers of the other. In arranging cut blooms for effect the thing is to select such as will associate well together, as by so doing a vase may be made to look much more striking with one or two things than with many. *Anemone fulgens* and Christmas Roses look happily together, and so do *Eucharis* and *Snowdrops*, which seem to vie with each other in whiteness. —S. D.

The Indian Daphne.—How delightful at this season a few good plants of this are, and how delicately they scent the whole atmosphere of a house! The plant should be well grown, and one of the best and simplest ways of growing it is by planting it against the back wall, or otherwise in a good loamy soil. It is delightful also for cutting, where well grown and plentiful, and indeed it should be everywhere, the delicate fragrance which comes from a few simple sprays of it in a glass in a large room being most welcome. In days long past we were much indebted to the old red *Salvia* for the decoration of our autumn greenhouses; but lately a new group have been introduced, which help very materially to make a house gay in winter, some blue, but mostly red. By the way, the fine old *Salvia patens* would surely be worth potting for autumn flowering, or young plants might be raised and grown on during the summer for this purpose.—V.

Table decoration.—Single *Daffodils* used in large quantities, dressed with the bronzed leaves of *Berberis* or red Ivy leaves, make a perfect table decoration. Yellow Tulips can only remain stiff and stern, like soldiers; whereas *Daffodils* look down upon you with their graceful nodding heads. The colour is perfection by candle or shaded lamp-light. With them I use crimson *Rhododendron Hendersoni*, which is lovely this mild season. The blooms are cut short, not to injure the plant, and dressed in flat glass saucers with their own leaves. Let anybody try the effect of pale yellow and crimson and see if they do not like it. The red Ivy leaves are generally to be found on an eastern exposure.—M. E. C., *Auchendrane, Ayr*.

A GARDEN LEFT TO ITSELF.

LAST Easter I went, with several other members of the family, to a country cottage in Hampshire where we had lived for a long while, but which we had left in charge of an old couple from the village for four years, during which time the flower-borders had, by express directions, been left untouched. We felt some curiosity as to the condition in which we should find the garden we left behind us, and when we saw it we all exclaimed at once, "How beautiful!" If anyone had set to work to produce such a result he could not have done it. The eight large borders were completely covered with long waving Grass of the brightest green, from which a profusion of flowers, chiefly scarlet and yellow, shone out with a surprising brilliancy. It was indeed a paradise of pulps, and they looked as if they had really come in their thousands. It has been remarked that Wordsworth must have been aware of the beauty of massing in flowers when he wrote his celebrated poem on the *Daffodils*. All at once he saw "a crowd, a host of golden *Daffodils*." A few yellow flowers scattered here and there in the Grass would not have produced anything like the same effect on the poet's mind. Well, here was "a crowd, a host of golden *Daffodils*," and of scarlet Tulips and white *Narcissus* as well. The garden looked like a bit of the field, from which it is only separated by an iron fence, and these brilliant flowers were springing up naturally out of the green Grass, and growing together, exulting in their free life, with a luxuriance almost tropical. Although the borders were brimful of plants, there was no over-crowding, but groups and combinations met our eyes which would have delighted

the heart of a flower painter. Here was a large bunch of Primroses and Wood Anemones in the very midst of a plantation of vermillion brilliant Tulips; it would never have occurred to us to put them there, and yet how lovely they look; and further on a sheaf of slender Jonquils stood on a dark blue carpet of Grape Hyacinths, while one of the longest borders was positively overrun with white Flages, crimson Paeonies, and Yellow Prince Tulips. Everything was either in bud or blossom; it was truly a harmony in green. The prevailing idea was vigorous life; there was not a deadstick or faded leaf anywhere to be seen. The flowers were, in fact, growing wild, and had all the peculiar grace and charm of wild flowers about them. What made it particularly gratifying to me was, that I felt it was perseverance rewarded. While we lived there I never considered that the garden recompensed me for all the time and money I had spent upon it; but now at last I was amply repaid for all the pains I had taken.

G. LAYARD.

FRUIT GARDEN.

AMERICAN APPLES.

NEWTOWN PIPPIN.—In a recent number of THE GARDEN you quote the high prices at which our Newtown Pippin and Baldwin Apples are now sold in the Liverpool markets, and allude to the general poor quality of the fruit received there this year. The inferior quality is doubtless largely due to the fact that our Apple crop last year was very small and poor in quality all through the States, it being what we here call the "off year" for Apples. But another reason for the poor Newtowns which have reached you must be laid at the door of the unscrupulous shippers. It seems they never will learn wisdom in the exportation of Apples, and it is indeed a wonder that your people will continue to pay such good prices for the fruit they send you. Much of the fruit sent you as Newtown Pippins is spurious, for even here in New York State, where the fruit should be generally known if anywhere, hundreds of barrels are annually sold as Newtowns which in fact bear little resemblance to them, except in colour, and it is often innocently done by growers in good faith, who are not familiar with the fruit, and have either lost their tree labels or been deceived by the nurseryman. I have frequently met with farmers who were offering their fruit in markets in this way, and they manifested much surprise when told of their mistake. But as a rule the exporters do not err in this way. They know a Newtown Pippin when they see it, and are thus better able to select a close imitation when the occasion seems to demand it.

As an instance of the honest method of packing and shipping Apples to Liverpool and its result, I am reminded of the practice of an honest grower in the town of York, State of Maine. Five years ago he sold his Apples to a travelling buyer, who, it seems, sent the whole lot abroad without repacking them. The farmer selected the fruit with great care, packing it securely. Into each barrel he put a slip of paper containing his name and address, together with a request that the final purchaser who should open the barrel would write him as to the quality and condition of the fruit when found. The whole lot chanced to come into the hands of a leading merchant near Liverpool. He found the fruit in such excellent condition and so fine in every respect, that he sent a letter of high commendation to the grower at once, agreeing to buy his entire Apple crop directly the next year. And this he has done every year since that time, paying him good round prices for his fruit.

Last fall exporters here paid from \$2.50 to \$3.50 per barrel for Newtown Pippin Apples along this river. Baldwins they bought for \$1.75 to \$2.25. The freight from New York to Liverpool is about \$1 per barrel. Some 10,000 or 15,000 barrels were probably shipped from this section of the river valley. If, as you say, Newtowns were selling there at 55s. per barrel in January last, it would seem to include a pretty handsome profit for somebody, although the fruit has, of course, passed through several hands and there has been some loss by decay, &c.

Now, you pertinently inquire, "Why cannot our cousins with their enormous range and great variety of country get more of the admirable Newtown for us?" And I wish I could present that question to every intelligent fruit grower in this favoured land. There is no reason why you should not have all you want of this fruit. The soil and climate are here in abundance for its successful growth, and all that is needed is to plant more of the trees, take proper care of the young orchards, and then in a few years gather the fruit. But the trouble is to get rid of the prevailing notion among growers generally that this Newtown Pippin is an unprofitable Apple to grow for market. It grows slowly at first, is so long coming into bearing, and then is knurlly and imperfect at first, they say. And there is a degree of truth in these objections. But when the tree finally does attain to size and full productiveness, it surely makes all amends, bears abundantly, and continues to yield its precious load unfailingly through a long period of years. And the superior excellence and greater market value of the fruit: does not that pay for the extra years of waiting? Now I may be an enthusiast on the subject of the Newtown Pippin Apple, and I may not; but surely we Americans, and especially New Yorkers, where the fruit originated, are very proud of this celebrated American Apple, and it affords us pleasure to know that in England it is regarded with so much favour. We certainly do not object to receiving your fancy prices for it, but we would be glad to tinkle more of your palates with it. And yet it must be admitted we never get quite enough of the fruit even here. We always expect to pay more for it than any other Apple, and are very glad to get it even at that; so it would seem there should be every incentive to raise more of it. If it is more difficult to raise than most other Apples, it brings a much higher price. But, as far as my own experience goes, I am not prepared to admit that it is so difficult to grow, at least in this locality. It is rather slow to come into bearing, and yet I could show some young orchards of it here in the autumn that would rejoice the heart of any man as he gazed upon the low, bending branches. In regard to the identity of this Apple, it may be of interest to readers of THE GARDEN to refer to Vol. XIII., p. 437, where they will find an accurate outline drawing of this fruit and a careful description.

Kingston, N. Y.

H. HENDRICKS.

APPLE IMPROVEMENT.

THERE are too many Apples introduced. Often as many as 150 kinds are sent to one exhibition; then how much better it would all be if a competent jury were to say how many kinds were really worth growing. We know it is very hard, because tastes differ and soils too, but really the number of Apples that are and may be raised is unpleasant, and the line must be drawn somewhere. No one knows how strict the selection ought to be. One hardly ever goes into gardens where one does not see a score of kinds of Apples where three or four ought to be, and yet one cannot give up raising Apples because,

if the truth must be told, many of our popular kinds are really not very valuable. We want in the face of our recent severe winters a race of ever-bearing Apples, and we want free bearers to fill a basket for the market; more than all, we want Apples of fine texture and good flavour. Now some of our showy and large Apples are neither one nor the other. We ought to have Apples as good as those of any other nation, and increase considerably those with first-rate flavour; colour and size are nothing compared with flavour. We should let the Apple itself grow its own sugar, as the Blenheim does. This Apple, cooked at its best, is an excellent sweetmeat without sugar, and that we conceive to be the ideal of an Apple which is perfectly cooked without a particle of sugar. So, too, the Newtown Pippin; therefore, the division between the eating and cooking Apples is really a valueless one. What is called a dessert Apple with us is mostly one of very little use. Cooks go generally for the Wellington as a cooking Apple, and well it deserves it, but it must be made perfect by the addition of other materials. We think it would be possible to get a Wellington or something like it with the same pleasant acid and good texture, with sugar enough to make it palatable, like a Blenheim or a Newtown. It is extremely difficult to get an Apple fit to eat in the raw state in an English garden, because the texture of many of our Apples, said to be well flavoured, is really very wooden and the flavour poor. We have been thinking too much of colour and size. The King of the Pippins may be instanced as an Apple of poor flavour with a showy and handsome exterior, and deficient, like many others, of that fine high juicy briskness which we could easily get infused into good eating kinds from such Apples as the Cox's Orange Pippin, and others that are rich in acid. We believe that it would be possible to raise for England a race of Apples as fine as the finer American kinds, and when at their best these certainly are very remarkable. The Newtowns, of which our American friends send us so many, they do not care so much about, and really, judging by some kinds we have tasted, we should say they are right. We remember a little Apple called Jonathan, with a beautiful red skin, and flesh as tender almost as a Peach, with delicate flavour; it is an Apple as digestible as a Peach, which the Newtown is not. Flavour and texture should be our watchword in raising Apples, and we should like many to set to work. However, we began to write this paragraph to introduce what we are informed is a very valuable Apple, Lane's Prince Albert, that of being handsome and hardy, and said by good judges to be a wonderful bearer. It is a cooking Apple. We still keep up the old and, as we think, deluding distinction; but when our Apple culture is really what it may be made, there will be less distinction between cooking and eating Apples. Let anyone take a dozen of really well chosen Newtowns, cook them, and see if our most popular eating Apple is not also delicious when cooked. Still, as things go, when we get a cooking Apple which is really a very regular bearer, we must be grateful for it, because it marks a step in progress, and in our uncertain climate the quality of bearing some every year is too good to be lost sight of. They say Stone's Apple or Loddington Seedling is a wonderful and perpetual bearer.—*Field.* [We have had Messrs. Lane's new Apple cooked and fairly tested, and think it a very well flavoured cooking Apple. It has been raised by Messrs. Lane, of Berkhamstead.]

Stemless Strawberry flowers.—Can anyone tell me the cause of my Strawberry flowers being stemless? I have about 200 Vicomtesse Hericart de Thury and President in pots. I put

them in the house some time before applying any fire-heat, and when heat was used it was only for a few hours a day for a time. I have grown Strawberries in the same house for these last eight years with success, the only difference in their treatment being that they were put into the house a month earlier. They are healthy, strong plants, but the flowers are small, and I am afraid will not produce good fruit.—G. T., Hounslow.

LOW NIGHT TEMPERATURES.

I THINK Mr. Simpson deserves our thanks for so honestly and persistently keeping this subject before the minds of the gardening public. That he is right his own practice and that of hundreds of others have proved, and Nature and theory are entirely on his side. At the present time we well remember the temperatures that were weekly recommended some quarter of a century ago, and the thin foliage and exhausted Vines, and the hard firing and the red spider which were the result. High temperatures night and day, steaming, syringing, and damping were the incessant routine, as villing and earnest learners knew to their cost. High temperatures come down much nearer our own day than those ancient times which we measure by the word century. A reference to the calendars of the *Gardeners' Chronicle*, *Cottage Gardener*, or *Scottish Gardener*, and even down to *THE GARDEN*, will show that high night temperatures were recommended and practised. High night temperatures compelled attention to some process for counteracting their bad and debilitating effects; hence we had wise and ingenious horticultural heads devising means to supply a constant stream of fresh air to pass in and out of our vineries and forcing houses, in the vain attempt to maintain the vigour of the Vines by passing the fresh air first through a series of perforated funnels round the hot pipes, and then allowing it to escape into the house. At one time this fresh-heated-air question was much spoken and written upon, but since the advent of Mr. Simpson's more rational low night temperatures, the roasted fresh air distribution has fallen much into forgetfulness. We have practised much against our will low night temperatures in our day, and it would be curious to know of the many heartaches which deficient heating power to maintain the 60° to 75° formula has given many a gardener, but we would also be curious to know under what temperatures and in what sort of structures some of our once celebrated Grapes have been grown, such as the famous Cole Orton Grapes and others which could be named. We opine low night temperatures were the rule in spite of the directions of the calendar. Broken glass and bad glazing have been a guarantee of fresh air for which the Grapes and Vines have been grateful. As better glass, better glazing, and better hot-house heating became the rule, these "chinks" and "cracks" of fresh air left on night and day began to be recommended in the calendars; and finally Mr. Simpson audaciously recommends low night temperature as the rule. Of course, everybody knew all about it, but everybody did not the courage to openly recommend the practice. Mr. Simpson had his ideas verified on his visit to the vineyards of France, and which, if we remember rightly, he refers to in his report to the Society of Arts on the Paris Exhibition. Common sense would teach us if Nature did not that a low night temperature conserves the vigour of the Vine. It actually expedites the ripening period. We used to delight in the stiff foliage with a drop of dew hanging from every point in the early morning, a sure sign that the house was not roasted over night. With a high night temperature the foliage is dry and exhausted, and the morning syringing is an advantage. With a low night temperature the syringe is unnecessary. But a low night temperature supposes a high day temperature when the sun shines, and when Nature demands it, hot clear days and cold nights are Nature's culture in Vine countries; it is the hot days which ripen, and we opine that if high day

temperatures be well maintained to ripen the wood, even Muscats will set so much the better the following spring under low night temperatures. We have known Peach trees removed from heated Peach houses to the open wall set their fruit perfectly, notwithstanding frost and adverse circumstances, when the trees alongside of them which had occupied the wall for years failed, and the season was blamed, the fact being that the removed trees were grown the previous summer in heat. We remember the case of a Peach house heated by a fire; the trees over the hot end of the fire made short growth and always set abundantly, while the trees at the cold end never were so certain, simply because of the ripening of the wood. The same applies to Muscat or other Vines over the hottest end of a vinery.

I think Mr. Simpson deserves credit for reducing to rule the lessons we ought to have profited from long ago. He seems to have been the first to catch up the loose threads of experience and to show us how simply Nature cultivates. We think this is the track in which this new agent, viz., the electric light, now being pushed to the front as an auxiliary to horticulture, should be made to work. With high day temperatures for Vines we would want some extra light as well on dull days when the sun is obscured under clouds; then the artificial sun might be turned on. Hitherto this agent has been utilised at night, if we remember rightly, in horticultural experiments. We would suggest that for Vines at least the daytime, and on cloudy days the electric light, should be used. The day is the time when we enjoy the sun's heat, and which when deficient we supplement with coals. The day is also the time when we enjoy his life-giving light, and then is the time when his deficient light should be supplemented with electricity. Vines, we believe, require a certain amount of rest at night, and that rest should not be disturbed by forcing them on with the heat and light of the day.

HIBERNIAN.

NOTES AND READINGS.

IMPORTED LILY BULBS.—Imported bulbs do die, we are told, but one would like to know whether the statement be true or not in the sense in which it is meant. One fact appears to be pretty well established, however, that the popular *Lilium auratum* will not thrive well everywhere permanently planted out, for its vigour wanes quickly in some soils and situations; so far as we have seen, imported bulbs do best, the first year at least, and in using plants for outdoor purposes we should prefer them. Vine eyes from Spain, it has been asserted, make better and stronger Vines than those propagated from eyes produced in this country, because they are sounder and better matured, and one cannot understand why a Lily root should not be affected by the same conditions. Acorns from France produce stronger plants than the Acorns produced at home do, so the trade say, and they prefer them accordingly, and imported Lily roots too probably.

SINGLE HYACINTHS.—The superiority of single Hyacinths over the double ones is well exemplified at this season of the year. The flowers are altogether better developed and fuller in the truss. Grootvoorst and a few other doubles succeed pretty well when forced early in the season, but none of them equal a Grand Lilas and others of that type, of which more are perhaps sold than of any other named variety. Like a great many other popular flowers, the varieties of Hyacinths are becoming far too numerous, and very many recent introductions are worse than the older ones, while many do not possess any special merit whatever. The Dutch growers seem to manufacture new varieties for the sake of sale purposes only. In a bulb catalogue now before me, published by a noted

firm, I find that the only kinds admitted to be worthy of cultivation amounted to just two hundred, or thereabout, and numbers of these are extremely doubtful. The different shades of colour are divided into nearly a dozen classes, consisting of from a score to thirty varieties each, and from which probably one or two would afford variety sufficient to satisfy the most critical.

One can only admire the nice discrimination, not to say courage, that has been able to describe each variety of Hyacinth as something different from its neighbour. The distinction between azure, rich azure blue, dark blue, purple, glittering purple, violet-blue, rich blue, rich violet-blue, dark purple, black-purple, &c., is simply astonishing, and this describes one section of the blues only; there are several other blues, porcelain and mauves, all equally varied and distinct. An artist never dreamed of the number of delicate shades that the catalogue maker recognises. There is only one colour which, to the latter, seems to present a general uniformity of hue, and that is "pure white," but he distinguishes some thirty kinds of this section by the form of the truss, and on the same principle as he does colours apparently. We have splendid trusses, fine trusses, large trusses, large full trusses, long handsome trusses, large handsome trusses, large, compact, handsome trusses, large splendid trusses, moderate trusses, perfect trusses, neat, good trusses, and very large trusses. All these are *bona fide* descriptions from the catalogue. Considering that not one person in five thousand, if there be any at all, is able to distinguish mentally or ocularily the differences thus so accurately described, it may be guessed what a labour of love it must be to compile a catalogue of this kind. Those who complain that the English tongue is not comprehensive enough for a botanical vocabulary should consult those who make our garden catalogues. It is the "florists" flowers principally that encumber the lists so generously.

SHRIVELLED GRAPE.—It is perfectly true, as Mr. Fish states, that once some of our late Grapes have shrivelled to a certain extent they will keep for an indefinite period without attention, and Mrs. Pince is an example of this. It almost invariably wrinkles in the skin by January, and afterwards does not appear to be affected by external conditions of temperature or anything else. To put the "art of shrivelling" our Grapes into regular practice, however, with the object of preservation is a bold proposal that those who regard the appearance of their dessert will regard askance. Quite true it is that shrivelled Muscats and other Grapes are often very good to eat, but plumpness is a quality that is indispensable. There is some excuse for eating wizened Muscats, but none for shrivelled Lady Downes or Alicante while good Muscatel Raisins are to be had, and which are far preferable. Hardly anything looks worse or more shabby than a shrivelled Alicante. Is it true that Grapes are keeping so badly this winter? We have not heard or seen anything to cause us to think anything of the kind. According to all accounts, however, experience differs greatly on the subject of keeping Grapes after they are bottled. Some succeed wonderfully, but some amazing losses have been recorded in spite of care and attention—owing probably to damp. The vitality of the Grape berry is lowered after it is severed from the Vine, and it becomes more sensitive to external influences, and especially to damp—a perfectly dry apartment is the place for bottled Grapes.

THE BEST ORCHIDS.—We wish writers on Orchids for common people would confine themselves to the really good species and varieties,

and if they were a little less particular in their descriptions—less technical, their papers would be quite as useful. From some points of view all Orchids are either pretty or interesting, but it is a fact that many beginners who buy collections in enthusiastic anticipation of having grand flowers of a *recherché* description are often woefully disappointed at the result. There are few of the Lady's Slippers, for example, that the simple admirer of a pretty flower can grow ecstatic over, and there are many other subjects that can be contemplated without rapture. In looking over an extensive private collection lately one was struck by the numbers of apparently inferior varieties so carefully potted and nurtured, and it occurred that a judicious selection would probably have reduced the collection to about one-third of its number at the most. Whether it be *Angreecums*, *Dendrobiums*, *Aerides*, *Vandas*, *Odontoglossums*, *Cattleys*, &c., it is quite certain that in a moderate collection all the very best types in each species might be represented by a few kinds on which the labour would be better bestowed. Take the *Odontoglossums*, for example; the good properties of the whole—and they are many—are all embraced, according to the thinking of some, among such kinds as *Alexandré* in its many forms, *veixilarium*, *cirrhosum*, *Pescatorei*, *Phalenopsis*, *pulchellum majus*, and *Roelzi*, and probably the same number or thereabout would include all the *Dendrobiums* worthy of a place, and so on with other species. A selected collection presents a very different aspect from a miscellaneous one, in which everything in the shape of an Orchid is preserved. The great utility of Orchids for cutting, and the demand upon them for that and other purposes, will shortly cause cultivators, when the present Orchid mania has subsided a little, to weed out severely and do with Orchids as they do with Grapes and Pine-apples—grow the best only. Those who realise this earliest will have reason to congratulate themselves hereafter. Most trade lists of Orchids contain many varieties that in the ordinary exigencies of garden culture are not worthy of a place in a collection.

PEREGRINE.

TREES AND SHRUBS.

THE WEIGELAS.

THE *Weigelas*, or *Diervillas* as they are also called, may be classed amongst modern introductions, for until Fortune sent home *W. rosea*, in 1845, from China, the only species we had was *Diervilla canadensis*, a small North American shrub, at that time comparatively common, but now almost displaced by its showy congeners. Owing to their free flowering properties and the ease with which they may be increased, both *amabilis* and *rosea* have become amongst the commonest of shrubs, forming worthy companions for the flowering *Currants*, *Spiræas*, and similar ornaments of our shrubberies. Besides the two kinds just named, there are also many fine hybrids in cultivation, for which we are chiefly indebted to Continental growers. Their only fault is they are too much alike. *Amabilis* and *rosea* even greatly resemble each other, the principal points of difference being the stronger growth, more spreading branches, and much reticulated leaves of *amabilis* compared with those of *rosea*. Nevertheless, they are probably but different forms of the same species. Another rose-coloured sort, but superior to the two just named, is *A. Carrière*, the flowers of which are larger and of greater substance, while the habit of the plant is more vigorous. Among white-flowered kinds *hortensis nivea* has large, bold, strongly reticulated foliage, and though its habit is somewhat loose and spreading, when laden with flowers it is really a grand shrub. Being a little tender, it is, however, often injured in winter. Of quite a different habit is *Weigela candida*; instead of

being spreading this is compact and bushy; indeed, it may be best described as a pure white form of *rosea*, and it is harder than *nivea*. Of crimson kinds, *Lavalée* (deep crimson-claret) is, though one of the oldest of that colour, still one of the best. Another of this type is *Van Houttei*, and between these two and *rosea* many



Flowering branch of *Weigela (Diervilla) japonica*.

varieties have been raised, as, for example, the kind called *Dr. Baillon*. *Edouard André* and *Gloire des Bosquets* are both very dark kinds, too dark indeed to be effective, especially when seen in masses. In addition to the above there is a form of *rosea* in which the leaves are edged with yellow, but not very clearly; *Looymansii*, however, has foliage of an intense golden colour, especially where fully exposed to the sun. This, indeed, is one of the best of golden-leaved shrubs. *Diervilla canadensis*, already alluded to, has yellow flowers, but with narrow petals, and though interesting not very showy. All the *Weigelas* delight in a good, free soil, and may be easily propagated from cuttings taken off when dormant and inserted in the open ground. Another way is, in the summer when the young shoots are about 6 in. long, to take them off, insert them in pots, and keep them in a close frame till rooted, which will be in about a month, then pot them off, and they will become thoroughly established before autumn; in spring they may be planted out. *Weigelas* also ripen seed freely, and may be propagated in that way.

ALPHA.

AUCUBA JAPONICA IN FRUIT.

Now that the male variety of this pretty shrub is by no means scarce in this country, those who possess large plants of the early introduced sort, all of which are berry-bearing, may, if they desire it, have such plants clothed with bright cherry-like fruit during the ensuing autumn and winter months if they obtain pollen from the male variety as soon as it is ripe, and carefully fertilise the flowers of the berry-bearing variety as soon as they have fairly expanded. The flowers of the female variety are very small and inconspicuous, of a pale greenish colour, and consequently not unlikely to be unobserved, while the pollen of

the male plants is generally produced in considerable abundance, and when collected and kept from the action of the air is said to retain its fertilising power for a considerable length of time. It is, I believe, to be obtained in the trade, &c., from nurserymen, and those who have it in stock should advertise it, as the time is at hand when it ought to be applied. In order to secure the fertilisation of such plants in future years without further trouble, a few shoots of the male variety should at the present time be grafted upon large plants of the female sort, and this would ensure the production of abundance of berries, as in these plants fecundation appears to be readily effected. Even where male plants are growing at a considerable distance from the female plants the latter invariably become covered with fruit, the pollen appearing to be conveyed to the flowers by insect agency, or even by the action of the atmosphere alone. Very few more beautiful objects are to be seen in the gardens and grounds during winter than a well-grown bush of the *Aucuba*, well studded with its large, bright, red berries, which the birds, so far as I have yet observed, do not appear inclined to greatly interfere with. If it should be intended to engraft shoots of the male variety upon the other this should be done without delay, as the present time is that in which it can be most successfully accomplished.

P. GRIEVE.

THE AMERICAN ALLSPICE.

THE *American Allspice* (*Calycanthus floridus*), so called from its strong aromatic odour, is a medium-sized deciduous shrub with ovate, dark green leaves and singular looking, dull purple flowers, very sweet scented, and produced for a long time during summer. It is a native of North America, where it is found in moist, damp places, a circumstance which should be borne in mind when planting it, as in hot, dry situations it does not succeed. It cannot be called a showy shrub, but the colour, odour, and conformation of the flower render it very interesting. There are several varieties of it, but they differ but slightly from the type; of these the most notable are *elongatus*, *lavigatus*, and *glauca*, the foliage of which varies somewhat as indicated by the names; inodorous and aurantiacous



The *American Allspice (Calycanthus floridus)*.

derive their distinguishing titles from floral differences. *C. occidentalis*, or, as it is often called in nurseries, *C. macrophyllus*, is altogether a plant of more vigorous growth than the common *American Allspice*, but it does not stand the winter so well as that kind. The best place for it is trained against a shady wall, a situation in which it will flower nearly the whole of the summer, while in

the open the flowers are, as a rule, but sparsely produced. Not only are the blossoms of *C. floridus* fragrant from the plant, but they retain their perfume for a great length of time even when dried. This and the other species are propagated by means of layers; cuttings root with difficulty, and where suckers exist it is no easy matter to detach them with roots adhering to them.

ALPHA.

RHODODENDRONS.

THAN these few shrubs are more useful or ornamental, ranging in colour, as they do, from white to intense crimson-scarlet, the earliest being Nobleanum, or the small-flowered davaricum, which blooms in February or March, and the latest Sir James Clark and others which flower in July, a long period of bloom from one class of shrub. Brayaum, James Marshall Brooks, Kate Waterer, and Joseph Whitworth are also equally beautiful. It is to be regretted that these and similar sorts are not more extensively planted than they are; one often sees gardens where they would grow and be highly ornamental with scarcely one, or good positions taken up with potted, a kind that grows well enough under large trees. Even the pleasure grounds and gardens at Bournemouth, where they would be a grand feature and thrive well, are destitute of the better kinds. Only fancy how well they would look early in spring in some of the sheltered nooks about that favourite watering-place. Some twelve miles west of Bournemouth on the coast Nobleanum used to bloom in February, and often did not get as much injured by frost as the later flowering kinds. People sometimes say the better kinds of Rhododendrons are expensive, but as they grow rapidly they need not be planted very closely together. Good plants to give immediate effect may be bought at from £10 to £15 per 100, and plants may be had for 3s. 6d. each with from six to eighteen bloom buds on them. These might be potted and brought on under glass (not forced) and used for indoor decoration, and then planted out and be none the worse. Few plants bear moving better than Rhododendrons, a fact proved by the way in which they are brought to the shows in London and elsewhere even on the eve of opening their blooms. On examining some of the bushes in this neighbourhood I met with few that were not well set with blossom-buds; out of some 200 kinds I could not find one without bloom-buds on it. Lovers of these grand plants may therefore look forward to a fine display this season. J. C.

Farnboro'.

SHORT NOTES—TREES & SHRUBS.

Arctic Conifers.—The following are the Pines which Baron Nordenskjöld found to the extreme north of the Russian possessions: *Larix sibirica*, *Pinus Cembra*, *Pinus sibirica*, sometimes known as *P. pichia*, *Pinus sylvestris*, a Scotch Pine, and *Picea obovata*, which is the same or nearly the same as that grown in our nurseries as Oriental Spruce.

Crataegus arborescens.—Dr. Engelmann, in a recent issue of the *Botanical Gazette*, says this is the largest N. American Hawthorn. It grows on the alluvial river bottoms below St. Louis. It makes a trunk 28 in. in diameter. The red or orange coloured fruit persists all winter, long after all other kinds of Haws have fallen.

Hot-water pipes.—In putting down two new boilers side by side to heat the whole of the houses here, the main pipes will be 6 in. in diameter from the boiler to the houses, and I have two lots to select from. The first are new pipes that have been coated inside and out with gas tar, and the second are old pipes which have been exposed to the weather for a considerable time, and which have got very much rusted. As I shall have to draw water from them for watering, I wish to ask whether water from such pipes would be injurious to vegetation? Any information on this point will be gladly received.—HARTWELL.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

WILD Primroses may be used in a variety of ways, and are always enjoyable in rooms. They do well in a broad, deep dish, or shallow bowl, by placing simply and naturally as possible, by gathering them up a few at a time with the heads uneven, placing them in the dish, then putting some wet Moss against the stalks to keep them steady, then more flowers, and so on till the dish is full, whole crowns of leaves, cut with a bit of root, being placed irregularly among the flowers. The Moss at the stalk ends also serves to keep the flowers more apart. Two or three extra hands can greatly help by gathering up and handing the Primroses in a continual supply. A little of the Moss showing here and there is an improvement, but it must be carefully chosen and not overdone. We sometimes so fill a round glass milk-pan 2 ft. in diameter, and even in so large a space, if rightly done, the effect is not monotonous. A good deal depends on the choice and placing of the foliage; at the time of picking, if it is intended to dress so large a bowl, we take up two or three handsome plants with large foliage and long-stalked flowers to be worked in near the centre. Such an arrangement does well on a large hall table, and is a pleasant greeting on entering a house. Single scarlet *Anemone fulgens* are arranged in cream-coloured glazed pottery with their own leaves, and placed near a sunny window. In picking from a bed of *Anemones*, those latest blown, and therefore most durable, may be known by the fringe of bracts being high up near the flowers. One or two clusters of Veitch's hybrid Rhododendrons, rosy pink and pale bluish, are grouped with golden-green twigs of *Kalmia latifolia* in white china. A tall glass vase foliage of wild *Arum*, whole groups of leaves being pulled up together in this way they live well in water. A polished brass flower-holder of circular shape has in the centre a pot of *Centia*, and round it as thickly as they can be placed are pots of *Scilla sibirica*, all well carpeted with fresh Moss.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

THE weather during the last few weeks having been mild and genial, we have an abundance of hardy flowers that will prove of great service in the house, and make a pleasing change from exotics and forced shrubs. Primroses and Violets associate well together, and for these any shallow, flat receptacle can be turned to good account, using either sand or water, but in either case some fresh green Moss will be useful; so also would a few small pieces of the finer-leaved kinds of Ivies. A few patches of Violets, taken up when in full flower, will keep for some time in a soup plate if a little soil can be got with them. In this way Violets look very well—better than in bunches, and they do not fade so soon. Wallflowers may now be had in abundance; they like plenty of water, and will keep in good condition longer if the ends of the stems be cut off once or twice. In a day or two now we shall be cutting blooms of *Magnolia conspicua* from a large specimen. These will look exceedingly well arranged in a pale blue vase for sideboard decoration. I find them to invariably open well when cut just as they are about to expand their ivory white blossoms. Their fragrance is also agreeable, but perhaps rather too strong for a somewhat small room. Daffodils may now be had in profusion. A few flowers of one or more kinds of these look well arranged with their own foliage something like the way in which they grow, and not bunched up in huge masses, as is oftentimes done. Of forced flowers next sprays of *Centia gracilis*, somewhat drooping in habit, are very serviceable as a fringe to a trumpet vase, the centre of which would look well filled up with a few pieces of *Hoteia japonica* and *Dielytra spectabilis* or *Chionodoxa Lucillie*. Clumps of the Lily

of the Valley will be valuable now in vases, and will be found more durable for this purpose than single crowns. Different coloured varieties of *Azalea mollis* look well together with a few pieces of their own foliage. From want of something better, a finger glass will suit very well in which to arrange them. Avoid placing vases of exotic or forced flowers or plants too close to an open window, the draught from which would soon spoil their beauty. When it is desired to prolong the perfection of choicer out flowers as much as possible, it is an excellent plan to arrange them in a receptacle that can be placed under a bell-glass. In the case of scentless flowers this method is worthy of consideration. J.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Cannas.—For outdoor summer decoration these cannot well be overrated; they are of easy culture, quickly increased, and wonderfully effective, both before and when they are in flower, and the variety and colour of both foliage and flowers are very great; though some are better than others, all the varieties grow and flower freely in the open air from June to October. They produce the best effects when planted in masses, the taller ones in the centre, and those that are dwarfer outside. They also look well alternated at wide distances apart with large plants of variegated *Abutilons* or *Acacia lophantha*. They attain the greatest perfection in deep, light, rich soil (a peaty loam with plenty of stable manure in it is best); they also do moderately well in stiffer soil provided the drainage is good. To get up a stock quickly the best way is to raise them from seeds, which, if sown in bottom-heat at once, will make useful plants for putting out in June next. Seedlings do not always come true; therefore when it is desired to retain any given variety, recourse must be had to division, an operation which may be performed any time before the roots start into growth; the portions separated should be potted in small pots and started into growth in heat. In dry soils in the south of England the roots winter safely in the beds if the surface be mulched with Bracken or Cocoa-nut fibre; but in less favoured districts and soils they should be lifted after the first severe frost occurs in autumn, and packed in dry soil in frost-proof sheds or cellars. The following are a few of the best varieties, viz., *aurantiaca*, *magnifica*, *peruviana*, *gigantea*, *major*, *nigricans*, *Premices de Nice*, *iridiflora*, and *Warszewiczii*.

Hardy Ferns and rockery.—Most kinds of Ferns are now throwing up new fronds, and before they get so much advanced as to be injured by working amongst them, all old fronds, weeds, and new plantings, or rearrangements should be completed as early as possible. Remove the mulchings and give fresh soil to any plants needing that attention. This is the best season to plant out Ferns; therefore, any new additions to this department should be furnished forthwith. Plant carefully, well firming the soil about their roots with the hand; after that give them a good watering to further consolidate the soil, and unless the weather proves exceptionally dry, no further artificial watering will be necessary. An immediate furnished effect may be had by intermixing with the Ferns a few compact growing shrubs, such as *Thujas*, *Retinosporas*, and *Junipers*. A free use of mossy *Saxifrages* and *Sedums* as a carpeting for Ferns is both appropriate and desirable, as they furnish the ground until the Fern fronds have become fully developed. The rockery is now beginning to look gay; *Aubrietia Campbelli*, *Phlox verna*, and *Lithospermum fruticosum* are one mass of blossoms, and others are fast unfolding. In the presence of so much beauty, weeds, decayed stems, or, indeed, anything of an untidy character, should have no place. Many kinds may still be planted, and if when the stock of plants has become exhausted there are still vacancies, these may be filled in by sowing *Mignonette*, *Silenes*, *Virginian Stocks*, in fact, any of the dwarfer spreading annuals.

General work.—Mowing must now begin in earnest. We began with the lawn mower a month ago, for the Grass has grown the whole of the winter. Negligence as to mowing early in the season results in coarse Grasses and a sickly coloured sward throughout the summer. Plenty of rolling, a dressing of soil or wood ashes, and early mowing ensure a fine velvety turf at all times. It is high time that lawn Grass seeds were sown; level and rake the surface fine, sow on a still day, rake the seeds well in, and roll frequently, but particularly after a frost, which upheaves the ground. Edgings of turf not yet trimmed should be so without delay, as they will soon be too dry to be operated on neatly. Walks, too, should ere this have had all necessary repairs done, and have received surfacings of fresh gravel, and rolling should be repeated after each heavy rainfall, till they are hard and firm to the tread. Walks under trees are apt to get Moss-grown and discoloured; in all such spots apply a sprinkling of salt; this will remove the discolouration, and add brightness to the gravel. Laurel and other shrub pruning should be completed forthwith, as should also any planting that yet remains to be done. Vacant beds and borders should be dug or trenched, and with the view of lessening the pressure of work at the general planting-out time all kinds of plants that can now be put out with safety should be planted.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Achimenes and Gloxinias.—As soon as Achimenes started early have made an inch or two of growth they should be placed in their blooming pots or baskets, whichever are used. A few more ought now to be started, reserving a portion to be brought on later, for if it is deemed desirable to have them in bloom for a lengthened period they must be started at different times. Some of the old bulbs of Gloxinias should now be potted and placed in a brisk heat, but as soon as the tops begin to move they must be put as near the glass as possible. Few things are so much influenced by the treatment they receive in this respect as Gloxinias, which, if grown in a way that causes them to be at all drawn up, are rendered almost useless. If not already sown, a little seed should be put in. Few plants have been so much improved in recent times as these. If a good strain of seeds is obtained they will yield flowers equal to the best named kinds.

Amaryllis.—Where these are grown in sufficient quantities to admit of their being brought into flower at different periods, the earliest will now be in bloom. Give them a light position; otherwise if not grown comparatively cool the foliage is liable to come weak and soft, a condition which materially interferes with their flowering capabilities in time to come.

Eucharis.—Now that the season is coming on when the sun may be expected to have a good deal of power, see that these plants are not too much under its direct influence. Easy as Eucharises are to manage, many fail with them through an inability to keep their leaves in a healthy state. The most frequent cause of this is allowing them to be exposed to the sun to which, unlike almost all other cultivated bulbs, they have the greatest dislike unless far from the roof. Plenty of pot room is essential to quick growth and free flowering, and if small specimens are deemed the most desirable they should be divided, and the bulbs placed three or four together instead of letting them remain crowded. If by any chance the plants are strong and do not flower so freely as they ought to do, the shaking out and separation needful for their being put in small pots is almost sure to have the effect of throwing them into bloom. See that they are free from worms, as where bottom-heat is used the soil is often liable to contain them, and their presence for any length of time generally results in the plants getting into bad condition. Soot water made moderately strong will usually free the soil from worms. If the plants are at all af-

fectured with scale or mealy bug the sponge ought to be well used before the higher temperature, consequent on warmer weather, causes them to increase faster than they otherwise would.

Shrubby Calceolarias.—Comparatively few soft-wooded subjects are more useful or effective for conservatory or greenhouse decoration in spring than these, and, considering the small amount of trouble they give to have them in good condition, it seems strange that they are so little grown. By cutting them back each summer when the flowering is over, like Pelargoniums, but not shortening the shoots so close as in their case, they will last for a number of years, attaining a large size and blooming so profusely as to all but hide the leaves. Old examples fairly well wintered if given a shift now into rich soil and kept in a temperature of from 40° to 45° in the night, and quite free from aphides, will form strong bushes full of flower by the beginning of May. Amongst yellows the old bedding variety aurea floribunda is one of the best; the darker coloured kinds succeed equally well. Young plants now in their blooming pots should be kept a little warmer than ordinary cool greenhouse stock if they are wanted in bloom early.

Herbaceous Calceolarias.—These also ought now to be accommodated with a little warmth, and be set close to the glass, giving them plenty of manure water. The most essential matter in the cultivation of these plants is to see that they do not get injured by aphides, for if once these get established in quantity on them, the foliage is sure to be injured, which not only spoils their appearance, but is equally detrimental to their blooming.

Hydrangeas and Neriums.—Where Hydrangeas are grown in small pots from cuttings struck annually they force well, and where the pots are full of roots they must be treated to manure water every week, as on this depends the size and strength of the flowers. If a portion of the stock is kept cool, a succession of bloom can be maintained for several months. Small plants of Neriums are most useful; where well ripened by full exposure to the sun in the open air during the latter part of summer, they rarely fail to flower. Care must be taken that they are plentifully supplied with water, for although the plants will bear drought without injury in the autumn and winter, yet as soon as the bloom buds begin to move if too dry they will most likely fall off. An intermediate temperature is sufficient for such as are to be forced, as if subjected to too much heat they do not generally flower well.

Humea elegans.—This old-fashioned plant deserves a place wherever room can be found for it. It is not only elegant in growth, but it has the additional merit of being at its best at a time in summer when there is usually a scarcity of conservatory stock. To have plants of it in good condition they must now be moved into large pots, as if cramped for root space they will be deficient in size and the lower leaves will not keep fresh, after the loss of which half their beauty is destroyed. They are subject to aphides, which must be regularly sought for, as they lie concealed at the under side of the leaves, and if allowed to remain they soon do irreparable harm.

Lilium giganteum.—Although this stately plant will succeed out-of-doors over a good part of the kingdom, still it will flower in a pot, if well managed, much more profusely than in the open ground. Examples that have been wintered singly in 8-in. or 9-in. pots should at once be moved to others 16 in. or 18 in. in diameter, giving them good turfy loam, enriched with manure, pressing it moderately solid in the pots. As soon as the roots have got well hold of the new material, manure water will help them, but, like almost all other quick-growing subjects, if stimulants of this nature are to have their full effect, they must be applied at the time the plants are gathering strength to form their flowers.

Fuchsias and Cinerarias.—See that everything needful is done to keep last summer's

struck Fuchsias moving freely, as any check as regards want of pot room, or keeping them too cold, will throw them into a premature flowering state, after which little progress in size is possible. Where Cinerarias are wanted in bloom by the end of the year, a bit of seed ought shortly to be sown.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Pines.—Examine the first batch of suckers which were potted early in February and plunged in a strong bottom-heat of 90°; and if it is found that the young fleshy roots are beginning to coil round the outsides of the balls, give sufficient tepid water to keep them in a nice growing state. Ventilate more freely and dew them over with the syringe after closing with solar heat. If the young plants are kept close to the glass and have plenty of room, the top-heat may now range from 65° at night to 75° by day; and to prevent the newly-formed roots from receiving injury, the heat about the pots may be allowed to descend to 80°, at which it must remain until they are potted. Where very strong suckers were obtained to start with, and the usual shift system is to be followed, make the usual preparations for carrying out the work with dispatch when the plants are in a fit state and the weather is favourable. Let the beds be made up of tan or leaves some time beforehand to ensure a steady bottom-heat of 85° to 90°, as getting into a newly-plunged bedrock and lift the plants is very objectionable. Err on the side of small pots—say 10-in. to 12-in. for Queens, and 12-in. to 14-in. for Cayennes; use pure, rough, fibry loam—bone dust and charcoal inclined to become adhesive—ram very firm to prevent all possibility of water being held in suspension, and while maintaining a moist, growing atmosphere by a judicious use of the syringe, carefully avoid saturating the soil until the roots begin to work freely through the new compost. Keep a close watch upon newly-potted plants, and place some very light shading over the glass for an hour or two on bright days. Let the heat in fruiting pits range from 70° at night to 80° by day; close with sun-heat at 85°, and run up a few degrees with atmospheric moisture well charged with ammonia. See that plants in flower have a brisk circulation of heated air to insure perfect fertilisation, and to prevent the crowns from becoming too large, as is often the case in close, dank, ill-ventilated pits.

Vines.—Disbud, tie down, and stop succession houses as the Vines advance, and remove all surplus bunches from free setting kinds as soon as the most promising for the crop can be decided upon. Early Muscats having plenty of fresh, active roots working in inside borders may also be divested of ill-formed bunches, provided a fair percentage of the best are left to choose from after the Grapes are set. Draw the points of the bunches up to the light when in flower, fertilise with Ham-burgh pollen, and let the heat range from 70° at night to 85° by day, and 90° when solar heat is available. Grapes now swelling must have a liberal supply of moisture charged with ammonia, and as keen easterly winds with bright sunshine frequently prevail in March, guard against checks from draught by shutting off fire-heat early on fine mornings, by timely ventilation, and by early closing with sunheat at a temperature of 85° to 90°. As the stoning process approaches, allow a free and easy growth of laterals, stimulate the roots with warm diluted liquid, and aim at a steady night temperature of 65° to 68° with a little air. When this strain upon the Vines is over, sharper forcing may be indulged in if it is really necessary, but the figures I have just named are quite high enough for all Grapes which do not come under Muscat treatment.

Late houses.—Endeavour to give the Vines as long a growing season as possible by shutting up with strong sun heat; syringe the rods several times a day, and maintain a moist atmosphere by damping the mulching material every evening

Vigorous young rods which have never borne fruit will require dexterous handling to get them to break evenly, particularly where the young beginner has been led or misled into leaving his canes long enough to carry a crop which his Vines cannot finish; but much may be done by tying down the points and elevating the dormant buds over heaps of fermenting material placed on the borders.

Hardy fruit.—All arrears of winter work, if any, at the end of so fine a season must now be gathered up, as a busy time is upon us, and spring operations require attention. As many of the recently planted fruit trees have not received a thorough soaking of rain water since the roots were disturbed, see that all mulching is well done before they suffer from the effects of drying winds and bright sunshine. Tread the soil firmly now it is dry before the manure is put on, and give all doubtful trees a moderate watering to keep them going until the sap finds its way back into the usual channel. Young stone fruit trees intended for training as supernumeraries must be treated as the above, and if cutting back is still a portion of the grower's creed, all buds must be pretty well advanced, or, better still, the work may be delayed for a year before they are subjected to a second shock. Where, in low damp gardens the topping of Raspberries is put off till spring, cutting back may be performed in March, and if well mulched early in the autumn a hand-weeding of the stools will complete this part of the garden for a long time, as digging amongst the roots is simply barbarous. Look over Strawberry beds, remove all weeds, spread down the mulching and rake off before the crowns become too prominent. On our cold damp soil we make it a rule to lay the autumn mulching in ridges between the rows, and after dressing the beds with soot, the manure is levelled down early in the spring—the advantages being freedom from slugs, more complete rest to the crowns, and a later and better bloom in the spring. With the exception of Pears, which bore heavily last year, fruit trees of all kinds in this locality are laden with blossoms, which promise to be bold, vigorous, and perfect, and so far the season is highly favourable, provided the advice to protect, which teems in every journal, is not carried to excess. It is of course well to be prepared for an emergency, but covering which excludes light and air checks and weakens the vital energy of the trees, and does more harm than well coped, but otherwise exposed, trees would receive from several degrees of dry frost.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

NEVER do I remember the land being in such good condition for cropping as it is now. My acre plot for early Potatoes is like an ash-heap, and although I seldom plant early Potatoes before the last week in this month, I could not this year resist the temptation of taking time by the forelock. I have therefore planted my acre of earlies. The sets have been kept on shelves in a well-aired room, and they were in fine condition, having small, but stout sprouts. The varieties are Early Frame, Early Hammsmith, and Empress Eugénie, but the bulk consists of Myatt's and Old Ashtop. We merely draw the drills and lay in the sets, but leave a slight ridge above each row. Other operations consist in filling up blanks in Cabbage and Lettuce quarters, and keeping the soil well cultivated between the rows, which is the very life of vegetation, and which should receive attention on all favourable opportunities. Now is about the very best time to make a selection of Broccoli for seed; take only one, but let it be the king among them. When in flower sulphur it to keep away insects, and when you cut the produce you will say, "I wish I had done this before." We have been busy cutting up all old stumps of Brussels Sprouts, Savoy, &c. What a useful vegetable sprouting Broccoli is! Some few years back Mr. Dancer supplied me with a stock of it, and capital it is. We also grow the white variety. My opinion is that it is not so sweet in flavour as the

purple. Our early spring Cabbage will be in time to succeed the above; therefore, no blanks, but all prizes, are the order of the day. French Beans are the only vegetables which occupy much space under glass just now; they are very unprofitable, but cannot be dispensed with; therefore, keep up a stock of them in accordance with the demand. Early Peas in boxes in cool houses are just now little pets, Laxton's Minimum being dwarf, prolific, and good in flavour. When the flowering period is over, mulch the boxes with rotten manure and give plenty of water, attentions which little Peas fully repay. Early Potatoes in boxes now in the Peach house should be kept short of water; only just enough should be given to keep them from flagging. I shall remove them into cool houses at once. We sowed our main crop of Celery to-day, the varieties being Major Clarke's, Sandringham White, and Carter's Incomparable Crimson.

KITCHEN GARDEN.

MUSHROOM GROWING.

LAST October my gardener made up a Mushroom bed in a small wooden shed 6 ft. in length and 5 ft. in width. It began to bear about the middle of December, and I have gathered from it weekly two or three dozen ever since, and to-day I gathered also two dozen. The two largest measured 16 in. in circumference and their stalks 5 in. and 6 in. round. The rest varied in size from 12 in. to 9 in. in circumference and were correspondingly thick. The bed was protected with only a slight covering of hay and an old horse-cloth hung over it in front—good evidence of the extreme mildness of the season. It was made up of the collected droppings of a mare and gelding from my own stable, and when first made was about 20 in. thick.—ALFRED CLARK, Trichenham.

—During the past winter I have had greater success with my Mushrooms than on any occasion hitherto. I have no properly constructed Mushroom bed, but there is a close shed about 10 ft. long, and 6 ft. wide, in which I thought they would grow admirably, provided the winter was not a severe one. I consequently erected beds around three sides of the shed about 3 ft. from the floor; the beds were put together rather roughly, as it was only an experiment, and several of the boards used were partially decayed. I had some time previously been collecting manure, and having it dried in an open shed; it was treated in the ordinary way; each morning when the boy went to the stables, and brought the fresh droppings, they were sprinkled over the collected portion; then turned over in ridges. About ten days before making up the beds they were thrown into a heap and allowed to sweat; afterwards they were thrown down again, and turned over for several more days, then sweated a second time, and thrown down again to allow the steam to pass off. After a few more turnings they were ready for the beds. I mixed about a fourth part of loam with them, then put them on the top beds right round the house. In a few days the heat had subsided to 70°, when the whole was spawned and topped with about 1½ in. loam beaten down firmly with the back of a spade. I spawned the bed about the middle of October, and in about a month the Mushrooms were up, but their growth was slow, as the heat from the bed was fast declining. In order to remedy this I put a mixture of leaves and hot manure underneath the bed, and in a day or two it was white with Mushrooms, some measuring 6 in. across. They kept up well until the heat began to decline in the manure and leaves; fresh material accordingly took the place of that exhausted, when another crop superior to the first sprang up, and not only did I get Mushrooms from the upper surface of the bed, but also underneath, where the boards were slightly decayed; wherever there was an opening, out came Mushrooms in quantity. The spawn had actually made its way through the boards, even where they were fairly solid. The fermenting manure was about 6 in. from the bottom of the Mushroom bed, and that no doubt induced them to come down. They

seemed to grow best when the air in the house was loaded with moisture from the warm manure. I have been cutting Mushrooms since the last week in November, and they are as plentiful now as ever. I have never known a Mushroom bed to bear so long or so plentifully as the one in question.—A. DEWAR, Hall Court, Botley, Hants.

Early Cauliflowers.—For some years back I have given up wintering Cauliflower plants. I find from experience that it is labour thrown away. When planting our first pit with early Potatoes, some time about January 20, I sprinkle a pinch of Cauliflower seed along with them. The young plants are not long in coming up; they are then pricked off into boxes, grown on in cold frames, and about this time they are planted out on a warm border, where they will be ready for cutting in the last week in April. I have also given up growing late varieties of Broccoli, i.e., those that do not come in until May or June. They cannot be compared with fine quickly-grown Cauliflowers, which are always in great demand.—R. NISBET, Asenbury Park, Rotherham.

—In reply to "W. J. M." (p. 165), allow me to say that for more than thirty years I have followed the practice of sowing Cauliflowers in the autumn, and I have never had a failure, nor suffered any inconvenience therefrom. No matter what the winter may have been, the crop from such plants has always been satisfactory, showing no tendency either to button or run to seed. The seed is sown on or about August 26, and we sowed from the same packet in the spring. When large enough the plants are put singly into small pots and plunged in a cold frame, which we always have at liberty for such a purpose, and they require but little attention until planting-out time, which, depending on the season, is either in February or March; sometimes the first week in February and sometimes the second week in March. For the first planting we use hand-glasses, and put four plants in each—one plant in each corner. In autumn, at the time of potting, we also prick out a supplementary lot under hand-glasses, say 25 to a light. These we protect with mats in severe weather, and they become fine strong plants to plant out in March, and succeed those kept in pots during the winter. I do not object to "W. J. M.'s" plan, but I have perfect confidence in the simplicity and certainty of that described.—J. M., Addington.

Aigburth Brussels Sprout.—The general disposition seems to be to praise this, and growers as a rule may be pleased with it when they see the great size to which the Sprouts grow, but this, in my opinion, is one of its weak points. Brussels Sprouts should be small, hard, and round, and not placed too closely on the stem. The Sprouts of the Aigburth are as large as a hen's egg, and crowded together so much, that in damp weather many of them decay. They are of loose consistence, and in cooking lose their form; whereas true Brussels Sprouts are beautiful little green balls which may be eaten individually and enjoyed.—J. MUIR.

Covering for seed beds in moist weather.—I did not wish to allow the first week in March to pass without sowing Yellow Maltese Turnip, Deftford Onion, Parsnip, Heartwell Cabbage, Snow's Broccoli, and Cos Lettuce. The beds had been previously arranged, but as it had been raining for ten days, more or less continuously, covering from the furrows was out of the question. Fortunately I thought of some screened coal and wood-ashes we had under an open shed, and used them as covering material for the beds. Already almost all are vegetated and above the soil. Had I peat ashes, generally plentiful in Ireland, they would have been better probably. They enable seed sowing to go on in any weather.—W. J. M., Clonmel.

New mode of wintering Broccoli.—In order to grow Broccoli well the ground on which it is to be planted should be well manured, trenched, and ridged in autumn or in the early part of winter. In May the ridges should be

levelled down with a fork, and drills drawn 2 ft. 3 in. apart, in which the Broccoli should be planted 2 ft. asunder. Of the various ways that have come under my notice of preserving Broccoli through the winter months the following proved to be the best: Every alternate two rows were planted with Cauliflowers or early Cabbage plants. At the beginning of October, when the Cauliflowers or Cabbages were all cut, the stumps were cleared off. The Broccoli plants were divested of their inner leaves and then earthed up to their necks, the ground presenting the appearance of Celery ridges. By this mode of treatment they have withstood severe winters to all appearance without injury, and produced by far the finest heads I have yet seen.—J. RIDDELL, *Wentworth, Rotherham*.

Mushrooms turning brown.—I have a Mushroom house 70 ft. long and 20 ft. wide, with four beds deep in the centre, and three on each side. There is one flow and two returns up each side of the house on the floor between the centre and the outside beds, and I have three square holes in the roof for ventilation. The house is covered in with thatch, and cased inside with match boarding. I make my beds with droppings beaten firmly, and spawn when the heat is 80°. In five or six weeks the Mushrooms come up thickly all over the beds; but when they get about half the size of a Walnut they all turn brown. How, can any one tell me, does that happen? My house is kept at about from 60° to 65°, yet they nearly all seem to go wrong; perhaps I may pick twenty good out of a bed of 35 ft. in length. How should I proceed in order to avoid such disastrous results?—J. D.

Watering Pine-apple plants.—I agree with Mr. Muir (p. 149) that there is often too much water given to Pines. I know some who make it a practice to look over their plants once a week in winter and twice a week in summer. I like to see suckers when turned out of their pots rooted like a well-managed pot Strawberry plant. I used to examine my Pines just the same as I would other plants. If the soil appeared to be at all moist no water was given. I know that some of my plants had no water save once in six weeks. Being plunged in leaves in a pit, there was nothing to dry them. Sometimes the soil would be dust dry on the top, but by taking a pointed stick and just moving the surface the soil beneath would be found to be quite moist. Pines should never be damped heavily overhead; when that is done, the water runs down the leaves and lodges around the collar of the plants, thus causing them to damp off, or rather rot, there. The best plan after a hot day is to simply give a slight sprinkling resembling dew. The plants above referred to after being potted grew rapidly, the leaves of some measuring 3½ in. in width and covered with bloom, so much so that one could write their name on them, and they were stout and leathery. If watering were better attended to, sickly-looking plants would be the exception rather than the rule.—J. P., *Durham*.

SHORT NOTES—KITCHEN GARDEN.

Salting ground for Carrots.—What quantity of salt may I use with safety to the square perch of ground where I intend sowing Carrots? and how should it be applied? My Carrots fall every year when about 6 in. or 8 in. above ground.—Y. M. T.

Barbe de Capucin.—What is the proper name of that very good salad sold in the Paris markets as Monk's Beard (*Barbe de Capucin*)? and how is it grown?—H. C. W. [It is the blanched leaves of Chicory, which are easily brought into that condition when placed in a little warmth and covered up from the light.]

SOME of our correspondents who are applied to privately for information on subjects on which they have written in *THE GARDEN* complain that the enquirers forget to enclose a directed and stamped envelope; and we are asked to remind them that that should in all cases be done. We therefore hope that no one will fail to comply with so reasonable a request.

NOTES OF THE WEEK.

GAGEA LUTEA.—From Mr. F. M. Burton, Highfield, Gainsborough, comes *Gagea lutea*, the English yellow Star of Bethlehem, found some years ago in a Leicestershire wood, and now thoroughly naturalised in his wild garden. It is not a showy plant, but interesting, being rarely met with a wild state.

CAPE POND-WEED (*Aponogeton distachyon*).—The pools filled with this beautiful aquatic plant have yielded flowers without intermission throughout the winter, and now they are developing dense masses of bloom, the Hawthorn-like perfume from which is alone sufficient to attract attention apart from the extreme hardness of the plant and delicacy of colour.

AMYGDALUS MACROCARPA.—This is by far the finest of all the varieties of the Almond Tree now in flower, though one, comparatively speaking, seldom seen. It differs from the common form in having much larger blossoms and in being only faintly tinged with pink. Several good sized trees of it in the Exotic Nursery, Tooting, are just now in full bloom, and are very attractive, being conspicuous even a long way off.

PAXTON'S "FLOWER GARDEN."—The first volume of this work, produced by Messrs. Cassell, Petter, Galpin, & Co., is before us. It is handsomely got up and copiously illustrated by woodcut engravings and coloured plates, and the additions to the original text of Paxton and Lindley by Mr. T. Baines bring it up to the present date. The colouring of the plates, we may add, is in several instances faulty—its only blemish.

AZALEA MRS. CARMICHAEL.—This new hybrid Azalea, grown and flowered as we saw it a few days since in Mr. Gower's nursery at Tooting is very beautiful, the soft carmine-pink of the blossoms being distinct from any other sort we know of. The flowers are moderately large, but produced in abundance on dwarf, compact growing plants. It is an excellent subject for forcing into flower early like the old *A. amena*, which we believe is one of the parents of this hybrid.

TROPEOLIUM LOBBIANUM TOWNSONI.—This is, without doubt, the most brilliant and profuse bloomer belonging to this useful species. It has flowered throughout the past winter, and at any time I could cut hundreds off a single plant trained on the roof of the conservatory. I have not a more useful flower, for every gardener knows how scarce scarlet flowers are at this time of the year. In this neighbourhood it is largely grown, but little known in the south. For market purposes it is invaluable.—W. R., *Bowdon*.

MYOSOTIS DISSEMINATA SPLENDENS.—The ordinary form of this spring Forget-me-not is beautiful enough, but it is quite eclipsed by this lovely variety, which we saw the other day in Mr. Hooke's garden at The Towers, Hillingdon. Its flowers are considerably larger than those of *disseminata*, the colours brighter, and the habit of the plant more compact. Everyone who likes the commoner form would be delighted with this. It does not appear to be grown in nurseries yet, as we have never met with it.

TROPEOLIUM FIREFLY.—This, one of the numerous Lobbianum varieties, is one of the finest of all for growing in a greenhouse for a supply of cut flowers in winter and spring, the brilliancy of its scarlet blossoms surpassing every other flower obtainable at these seasons. At the present time some plants of it adorn one of the houses in Mr. Gower's nursery at Tooting, forming beautiful festoons along both sides of the pathway—a beautiful object, and a most valuable source of a supply of cut bloom.

VARIETIES OF DOG'S-TOOTH VIOLETS.—It may not be generally known that the common Dog's-tooth Violet (*Erythronium Densa-canis*) is very variable as regards the colour of the blossoms. In Mr. Parker's nursery at Tooting there is now a fine display of bloom of several varieties, the chief being pallidum (pale pink), album (white), albo-majus (large white), purpureum majus (large deep purple-red), all of which are extremely beautiful, and, being displayed in such large masses as here, their beauty can be seen to perfection.

WILD TYPES OF CROCUS.—The common *Verul Crocus* (*C. vernus*) is so predominant among spring flowers in most gardens, that one would scarcely imagine that such beautiful variety exists among the wild species, of which the greater part are in cultivation. A large collection of these just now forms one of the most attractive features in Messrs. Barr & Sugden's grounds at Tooting, and the wide range of colour among them, from deep yellows and purples to pure white, is very remarkable. Surely such charming spring flowering plants are worthy of more attention than they get!

A NEW CYCAD (*Zamia montana*).—A very noteworthy addition has lately been made to the list of cultivated Cycadaceous plants in the form of *Zamia montana*, which Messrs. Shuttleworth, Carder & Co., of Clapham Park Road, have imported from South America. It is a remarkably handsome plant, as fine as any of the previously introduced kinds. From the large cumbrous stems are produced a tuft of leaves which spread out boldly into a symmetrical head. They are some 4 ft. or 5 ft. long, and have lance-shaped pinnae 1 ft. or more in length, giving the plant a noble aspect.

COLCHICUM CROCIFLORUM AND LUTEUM.—These two rare and very pretty bulbous plants are just now in full beauty in Messrs. Barr & Sugden's grounds, at Tooting. The former has flowers similar to those of some species of *Crocus*, hence its name. The flowers, which appear with the leaves, rise some 3 in. or 4 in. above the surface. The long slender tube is a bluish purple, but the spreading segments of the blossom are white, which with the foliage forms a pretty contrast. *C. luteum* has, as its name implies, blossoms of a yellow colour. The flowers are about as large as those of a moderate-sized *Crocus*, and of a bright clear orange-yellow. Though a native of Northern India, it seems to be quite hardy. Both these plants are pretty additions to hardy bulbs.

PUSCHKINIA SCILLOIDES.—The delicate beauty of this little bulbous plant renders it conspicuous among the crowds of hardy plants that have expanded their blossoms during the past week in the gardens about London. This *Puschkinia* grows about 6 in. high with a few deeply channelled leaves. The flower-spikes are erect, and bear numerous blossoms ½ in. across and arranged thickly on the stem. The colour is white, flushed with a faint tinge of blue, while a deep blue line runs down the centre of each division of the flower. It is now in full beauty in Mr. Parker's nursery at Tooting in company with large masses of the deep azure blue *Scilla sibirica*, *S. bifolia*, and others.

AZALEA ROSEIFLORA.—This beautiful greenhouse shrub, of which a coloured figure appeared in *THE GARDEN* (Vol. XVIII., p. 254), is just now one of the most conspicuous amongst plants in flower in Mr. Gower's nursery at Tooting. So totally distinct is it from any other Azalea in cultivation, both in colour and mode of growth, that it at once arrests attention. The flowers are from 1½ in. to 3 in. across, and so double as to form perfectly compact rosettes; the

colour, a soft salmon rose, deepens towards the base of the petals, which appear to be of various tints. The flowers before expansion so much resemble Rosebuds, that they might readily be mistaken for them, and therefore are excellent for button-hole bouquets. The plant seems to be almost hardy, and therefore may be grown in a cool greenhouse.

CYCLAMEN VERNUM.—This charming little spring plant is just now in its height of beauty in London gardens, and few more pleasing plants exist in the open air at this season. The neat little tufts of handsome metallic green foliage, zoned with silvery markings, together with the bright little flowers, combine to render it a veritable gem among rock garden plants. There are two varieties—one with bright crimson-red flowers, the other with pure white blossoms, save the blotch of crimson in the mouth of the corolla. Both are exquisite little plants, and no rock garden is properly furnished without them. They are very hardy and of easy culture, provided they are placed at the outset under favourable conditions. In Messrs. Barr and Sugden's grounds at Tooting we saw the other day some fine masses of this Cyclamen and its variety.

ARISÆMA STEBOLDI.—Of this singularly handsome Aroid, Mr. Green, gardener to Sir G. Macleay, Bart., Pendell Court, Bletchingley, exhibited some exceptionally fine examples at the Royal Horticultural Society's meeting on Tuesday last. It is synonymous, we believe, with *A. præcox*, which we described a short time since, but the way in which Mr. Green grows it represents the plant in quite a different aspect from what we are wont to see it. The curious hood spathe and their handsome markings render the plant really attractive, and it is one of those which, to fully appreciate, must be examined closely. It grows well in a greenhouse.

WHITE ANTHURIUM.—The white-spathed variety of *A. Scherzerianum* is really a handsome and desirable stove plant when seen in good condition, but so often it is seen with a confused mass of secondary spathe appearing from the spadix, that it is rendered very unattractive. It is well to know, however, that there are two forms of it, one much more liable to become a confused mass of spathe than the other. The best form we saw the other day in fine condition in Mr. Gower's nursery at Tooting, where it is grown in company with the typical form, the contrast between the two being very striking. Of the red-spathed form Mr. Gower possesses the large spathe variety known as maximum, which is of a brilliant deep purplish crimson and exceptionally large. It is a grand variety—one of the finest of all.

MARKET CYCLAMENS.—One of the most important nurseries in the neighbourhood of London where the Persian Cyclamen is grown on an extensive scale for market is that of Mr. Eldmonds, of Hillingdon. Here the Cyclamen is by far the most important plant cultivated, and receives the greatest attention, with the result that a wonderfully fine stock has been secured, representing that dwarf compact habit of growth so much desired, yet having a free habit of flowering and a rich variation in colour. One of the most remarkable varieties in the collection is that named *C. giganteum roseum compactum*, to which a first-class certificate was awarded a short time since by the Royal Horticultural Society. The characteristics of this fine variety are compactness of habit, handsome foliage, and large rose pink flowers, plentifully produced on stout stalks. Three long houses at this nursery are just now full to overflowing with Persian Cyclamens, all in full flower and well worth seeing.

HELLEBORUS COMMERZERIENRATH BENARY.—Of all the spotted Hellebores we have yet seen the one bearing this somewhat terrible name is the finest. It has large white flowers like the typical *H. guttatus*, but heavily and copiously spotted with deep purple, not only the base of the sepals, but nearly the whole of the lower halves. The blossoms, too, are neatly cup-shaped, which adds to the attractiveness of the plant. We saw it in flower in the collection of Mr. Hooke's, who has spent many years in cultivating and improving the Hellebore, and the collection that he has recently formed at the Towers, Hillingdon, bids fair to surpass even the extremely rich one which he had at Bradfield, Reading, but which is now at Kew. Among other fine Hellebores in flower in Mr. Hooke's garden, are *H. colchicus* and numerous hybrids between it and other kinds, all of which are very handsome and improvements on the typical forms. The plants are grown in good soil in a partially shaded situation, and are well cared for in other respects.

PLANTS IN BLOOM AT SOUTHPORT.—The following plants are now in flower here:—

<i>Adonis vernalis</i>	<i>Primula cashmeriana</i>
<i>Anemone Pulsatilla</i>	<i>Picaria ranunculoides</i> fl.-pl.
<i>ranunculoides</i>	<i>r. alba</i>
<i>Androsace Lageri</i>	<i>Sisyrinchium grandiflorum</i>
<i>Arabis albidia</i>	<i>Saxifraga ciliata</i>
<i>a. variegata</i>	<i>orbicularis</i>
<i>blepharophylla</i>	<i>crassifolia</i>
<i>Draba aizoides</i>	<i>Schmidtii</i>
<i>laxicaarpa</i>	<i>dahurica</i>
<i>Aizoon</i>	<i>oppositifolia</i>
<i>Dondia Epipactis</i>	<i>o. alba</i>
<i>Lepidium procumbens</i>	<i>o. major</i>
<i>Omphalodes verna</i>	<i>pyrenaica</i>
<i>v. alba</i>	<i>luteo-viridis</i>
<i>Helleborus atro-rubens</i>	<i>colophylla</i>
<i>a. vitreus</i>	<i>Bursieriana</i>
<i>guttatus</i>	

The above are all grown in pots and plunged in sand, of which we have an abundance in Southport; in fact, all our soil is brought here by rail from Ormskirck and the surrounding neighbourhood. Our garden is about 6 ft. above the sea level, and some 600 yards from high-water mark. *Draba Johannis* was the first to flower here early in the new year, closely followed by *Galanthus Imperati*. *Saxifraga Bursieriana* opened its first flowers on February 11, since which time it has continued to flower up to the present. Can any of your readers give me the history of *Galanthus Redoutei*? Is it a shy bloomer?—W. H. STANSFIELD.

SAXIFRAGA STRACHEYI.—By far the finest of all the Megaseas, or large-leaved Saxifrages, now in flower in Mr. Parker's nursery at Tooting is this species, which is a plant that no good garden should be without on account of its beautiful early spring flowers. In general appearance it is most like the summer-flowering *S. ciliata*, but it is quite unlike any of the spring-flowering Megaseas. It is of dwarf growth when flowering, the flower-stems being from 6 in. to 9 in. high; they are widely branched and spreading. The blossoms are large and of a delicate rose-pink, and, being borne so abundantly, are extremely attractive. At the time of flowering the leaves are only escaping from their buds. Some fine specimens in this nursery form one of the chief attractions among the numerous spring flowers in bloom there. Other kinds of Megasea in bloom are *S. crassifolia* and its variety *sibirica*. Though both of these are showy and desirable hardy plants, they cannot compare with the beauty of Strachey's plant, but on the other hand they are hardier, and will put up with rougher treatment and withstand severe cold. *S. Stracheyi* is a native of Northern India.

Nitrate of soda v. wireworm.—On entering a situation in the north I was informed that Carrots could not be grown in the locality. The first year I sowed in the ordinary way and

found the crop quite eaten up with wireworm. The second year I half filled the drills with soil from the potting bench and sowed the seed, covering it with the same material. After the plants were well up and thinned, on the approach of a shower I gave them a slight sprinkling of nitrate of soda (this was applied many times during the season), and by this means I obtained a first-rate crop of roots, while my neighbours could scarcely dig a sound one. I would advise those adopting the use of nitrate of soda to be most careful in its application. I have employed it for most kitchen garden crops, and have found it to be very beneficial if used carefully.—R. D. LONG.

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 14.

At this meeting, at which there was the finest display of flowers that has yet been seen this season, the great attraction was the magnificent groups of Persian Cyclamen, Cinerarias, Roses, and other spring flowers. New and rare plants, too, were numerous.

FIRST-CLASS CERTIFICATES were awarded to—**ODONTOGLOSSUM ALEXANDRÆ VAR. STEVENSI.**—One of the finest varieties of this valuable Orchid that has yet appeared in cultivation. Its flowers measure 3 in. across; the sepals and petals are broad and overlap, forming a symmetrical flower; the ground colour is white. The sepals have heavy transverse blotches of chocolate; the petals smaller spots and blotches of a deeper hue. The labellum is large, with large blotches of chocolate-red encircling a patch of bright golden yellow, the whole lip being margined with white and exquisitely fringed. The plant shown bore ten flowers, and was exhibited by Mr. Stevens from the Duke of Sutherland's garden at Trent-ham.

GALEANDRA NIVALIS.—A beautiful Orchid having showy flowers, in short racemes, produced from the upper parts of slender stems 1 ft. high, and furnished with narrow recurving foliage. The flowers are about 1½ in. across with small brownish sepals and petals, but a large shell-like lip, pure white, except a spot of purple in the centre. The yellow spur of the flower is carried behind for an inch. From Sir Trevor Lawrence, Burford Lodge, Dorking.

ONCIDIUM FUSCUM VAR. ALBUM.—A variety having a large labellum of a pure, waxy whiteness but marked in the centre with a conspicuous blotch of purple, overlaid with a brown varnish-like colour. It is an effective variety, and quite distinct from the normal form. From Messrs. Veitch.

AMARYLLIS DUCHESS OF CONNAUGHT.—A beautiful variety, with long funnel-shaped, pure white blossoms. A. Charles Dickens, with large, finely formed flowers, 5 in. across, of a vivid crimson, the broad petals being striped in the centre with a wide band of white, rendering the plant very attractive. A. Baron Schroeder, a kind having intensely deep crimson blossoms of large size and fine form. It belongs to the many flowered section, therefore very attractive. These were all exhibited by Messrs. Veitch.

RHOODODENDRON MONARCH.—A beautiful hybrid raised between R. Princess Alexandra and Duchess of Edinburgh. Its flowers, which measure 2 in. across, are borne on a dense compact head 5 in. across, and of a delicate orange-red colour. R. Excelsior is another very fine hybrid between R. Princess Royal and R. Javanicum. Its flowers are much larger than those of the preceding, and the colour is a beautiful nankeen, feathered and veined with crimson. The flowers, which are large, form a globose head. Both from Messrs. Veitch.

CYCLAMEN CRIMSON GEM.—A splendid variety of Persian Cyclamen, having large, but beautifully formed blossoms of an intensely rich deep crimson, and produced in abundance. C. White Gem, a lovely variety, the finest pure white sort yet raised, the flowers being large, the petals broad

and of great substance and purity of colour. A second-class certificate was awarded to C. Rose Queen, a beautiful variety, having very large flowers of a uniform deep rose, produced in abundance on short stalks in a compact head. These all came from Mr. Little, Hillingdon Place, Uxbridge.

CINERARIA MRS. CULLINGFORD.—A variety representing an unusually fine strain, having large and perfectly circular flowers, with overlapping petals of great substance. The colour, an intensely rich deep carmine-magenta, is as fine as could well be obtained. It was shown by Messrs. Cannell & Sons, Swanley.

ABUTILON LE GRANDE.—A variety remarkable for its abundant yield of large finely formed blossoms of a rich deep red colour, veined with a deeper hue. It is a decided advance upon older kinds. A Cloth of Gold is one of the finest yellow-flowered sorts yet raised, the colour being pure and clear, and the flowers large and perfectly bell-shaped with overlapping petals. These two were exhibited by the raiser, Mr. George, of Putney Heath.

CŒLOGYNE GLANULOSA.—Under this name was exhibited a plant which bore such a striking resemblance to *C. ocellata*, that it is probably merely a variety of that species. It resembles it, too, in habit of growth in size and shape of flower, but the flowers are pure white, except a blotch of lemon-yellow on the lip. It is a lovely Orchid, and one that well deserved the award which it received. It was exhibited by Mr. Parr, gardener to Mrs. Russell Sturgis, Givons Grove, Leatherhead.

MISCELLANEOUS SUBJECTS.—A magnificent display of Persian Cyclamens and Cinerarias from Mr. Little, Hillingdon Place, Uxbridge, constituted the chief attraction of the room, and rarely, if ever, has the Cyclamen been shown in such perfection as on this occasion. Upwards of a hundred plants were shown, all uniformly large sized and abundantly flowered. They were all in 6-in. or 8-in. pots, and the varieties represented every shade of colour from pure white to the most intense crimson, such as Crimson Gem, which was certificated. This splendid array formed one solid mass, and the effect may be more readily imagined than described. The Cinerarias from the same exhibitor were likewise of exceptionally high quality, especially the dwarf compact strain which Mr. Wiggins grows to such perfection, and which for decorative purposes is so superior to that containing plants of more spreading growth. A silver-gilt flora medal was appropriately awarded to Mr. Little for his grand display.

A similarly extensive group of Cyclamens, but of smaller size, came from Mr. H. B. Smith, of Ealing Dean, who grows the Cyclamen so largely and finely for market purposes. This group represented an uncommonly fine selection of varieties, from the pure white to the deepest crimson, though the intermediate shades were predominant on this occasion. The large size of the plants, compared with the small pots in this group, was noteworthy, a proof of how well the Cyclamen is understood by this exhibitor. A silver flora medal was awarded.

A smaller, but choice collection of Persian Cyclamens also came from Mr. B. S. Williams, Victoria Nursery, Upper Holloway. The plants were all excellently grown and flowered, and included a beautiful variety of colour. A bronze medal was awarded.

Another fine display came from Messrs. Paul & Son, Cheshunt. It consisted of about a dozen examples of pot Roses, which, having regard to the early date, were very fine, especially plants of Madame Lacharme, Madame de St. Joseph, Anna Alexief, and Madame Victor Verrier, which bore really fine flowers. The fine effect of these Roses was increased by some beautiful groups of Amaryllis, some of which were fine varieties, also by forced Ghent Azaleas and other spring flowers, the whole forming a group highly attractive, and well deserving the silver flora medal awarded. Among the Roses the pretty R. polyantha Anna Maria de

Montravel was conspicuously pretty, with its numerous small white rosettes of blossoms.

In addition to the certificated Amaryllis, Messrs. Veitch exhibited several other new varieties, the chief of which were Madame Albani, Fire King, brilliant deep crimson; Mark Tapley, Grace Darling, Lady Macbeth, The President, Lord of the Isles, a fiery crimson; and Fairy, all of which were wonderfully fine and fully exemplified the excellence to which this firm has brought the hybrid Amaryllis. Besides these Messrs. Veitch showed a collection of other plants, including the violet-scented *Boronia megastigma*, *Loropetalum chinense*, a dwarf shrub with singular white blossoms; *Dendrobium micans*, a hybrid between the Assam form of *D. Wardianum* and *D. litiflorum*, but partaking most of the latter parent; *Abelia serrata*, a very pretty shrub in the way of *A. rupestris*, but with white tubular blossoms, spotted in the interior with orange; *Cydonia japonica nivalis*, a variety of the common Japanese Quince, having pure white blossoms; also a large group of *Rhododendron Early Gem*, a variety similar to *R. præcox*, but with larger flowers of a richer colour, and much earlier. The plants shown were large and completely covered with blossoms; they had been taken up from the open ground and potted for exhibition.

Mr. Todman, of Clapham Common, again exhibited some of his new hybrid Azaleas different to those shown on previous occasions. These, like the others exhibited before, promise to become a valuable race of varieties particularly desirable for early forcing, for which purpose they lend themselves kindly and are extremely valuable.

From Messrs. Cannell & Sons, Swanley, came an attractive group, consisting chiefly of Cinerarias, of which they have an uncommonly fine strain characterised by moderately dwarf and compact growth, large flowers of perfect form and with a rich variety of colouring. The splendid variety March Past was shown in fine condition; also others named Lord Lonsborough, Dr. Ashurst, Edina, Dr. Daniell, Mrs. Miller, and Mr. T. B. Aston, all of which represent the cream of the collection, as regards high quality, the strain was highly commended by the committee. The same exhibitors also showed out blossoms of their beautiful new *Heliotropes*, White Lady and President Garfield; also Violet Swanley White (the best of all the double whites), and other coloured varieties. *Polyanthus James Douglas*, also from Swanley, was a remarkably fine variety of the gold-laced type with dark ground.

An attractive group consisting of Williams' Alba magnifica Primula, and another deep crimson sort called Queen Victoria came from Mr. Odell, of Hillingdon, all of which were remarkably well grown and flowered. A similar group of Primulas came from Messrs. Carter & Co., High Holborn, which made a showy display in the vestibule. The varieties Venus and New Bouquet, which were stated to have sprung from the blue Holborn Gem, were very pretty, and promise well for distinct forms.

A large collection of seedling Abutilons, numbering some half-a-hundred plants, was shown by Mr. George, Putney Heath, a raiser of new Abutilons. Besides those certificated, those named Dazzle, Crimson King, Rosy Morn, and Emperor were uncommonly fine, as were also the new dwarf kinds which grow only about 6 in. to 9 in. high.

Mr. Bennett exhibited a tray of about two dozen varieties of new hybrid Tea Roses not yet in commerce. None were named, but they included some remarkably fine kinds, both with regard to form and colour. Two named sorts, Earl of Pembroke, a dark crimson, and Lady Fitzwilliam, a pale rose, represent very beautiful varieties that should become popular.

As a reminder of spring, Mr. R. Dean, Ealing, sent a tray of blossoms of coloured Primroses, representing almost every conceivable shade, from his large collection of these charming spring flowers. Mr. Vertegans, Chad Valley Nurseries, Edgbaston, sent out blossoms of his collection of double Cinerarias, which represented probably all the colours at present in cultivation. The quality

of the blooms, too, was good. The same exhibitor also showed flowers of *Nicotiana undulata*, a pure white-flowered species of Tobacco. Some fine examples of Orchids were shown, which are alluded to elsewhere. A bright display of plants came from Chiswick, among which Cinerarias were prominent, also the beautiful *Lachenalia Nelsoni*, one of the finest of all the *Lachenalia* group.

There were but a few subjects for the fruit committee, a few Apples being about the only fruit represented, and these were not very remarkable.

Mr. Barter, of Lancelfield Street, Harrow Road, again exhibited some of the produce from his Mushroom beds out of doors, which has yielded crops in continuous succession throughout the winter.

Dr. Britten's report.—I am much indebted to Mr. Britten for so promptly pointing out the error into which I had unwittingly fallen with regard to this report; and it is with satisfaction that I hasten to make such reparation as I can to the director of the Ceylon Gardens, whom I accused of statements of which he is innocent, and for which the *Gardeners' Chronicle* is alone responsible. At the time when I wrote the comment in question I was not in possession of the reports itself, my only source of information then being the *Gardeners' Chronicle*, in which the report is reviewed and extracts printed. My mistake consisted in reading as an extract what, on again referring to that paper, I find to be its own view of the administrative capacity of gardeners, and which if allowed to pass unchallenged would have been at least capable of creating a wrong impression as to the fitness of men who had had a horticultural training for posts such as that of the management of the Ceylon Botanic Garden. Surely the statement that "when the gardens were for twenty years directed by a succession of gardeners next to nothing was done, and the gardens languished," cannot refer to the time when Dr. Gardner and Dr. Thwaites were directors. In conclusion, I can only express astonishment at the conduct of the *Gardeners' Chronicle* in giving utterance to views which even its own pages so abundantly disprove, and by which I have been, to my regret, misled.—F. J. E.

Names of plants.—*W. W.*—1, *Stauntonia latifolia*. The Fern cannot be named without better specimen. *T. N.*—1, *Signonia* species; 2, *Erica*; 3, *Leucopogon lanceolatus*; 4, *Cassandra calyculata*.—*F. H.* (*Ranunculus*).—1, *Freesia refracta* alba; 2, *Pteris longifolia*; 3, *Platycodon alcinurus*; 4, *Adiantum hispidulum*.—*Sylvester*.—Next week.—*J. W.*—1, *Leucopogon vernum*; 2, *Polygala Chamæbuxus*; 3, send when in flower; 4, *Galanthus Imperati*.—*H. C. H.*—1, *Boronia megastigma*; 3, *Andromeda Catesbeæ*; Others we cannot name from such scanty material.—*F. B.*—*Agathaea celestis*.—*H. Mc.*—*Streptilia regina*.—*R. V.* (*Exeter*).—*Doronicum cordifolium*; *Epimedium alpinum*; *Pulmonaria angustifolia*.—*Anon.*—1, send when in flower; 2, *Pulmonaria mollis*; 3, *Cynoglossum sempervirens*; 4, *Anemone fulgens*; 5, send in flower; 6, *Aubrietia Columæ*.—*Mac.*—Apparently *Lamium purpureum*.—*Embley*.—Apparently *Scilla Italica*.

Names of fruit.—(*Lyddiard*).—We find it impossible to name the Apples you send; even the fruiterers in Covent Garden Market fail to recognise them in their present imperfect state. Probably if you sent specimens in better condition to the fruit committee at South Kensington on the 25th inst., some of them at least might be named.

Large Cinerarias (*A. H., Belton*).—The flower you send is very large; but the points of a good Cineraria do not consist so much in large size as in breadth of petals and circular outline.

Gardens (Flora).—A list of the principal gardens and country seats in the United Kingdom is given in the "Garden Annual."

COMMUNICATIONS RECEIVED.

J. W.—*M. T.*—*J. C.*—*S. D.*—*S. W.*—*J. M.*—*R. N.*—*W. W.*—*J. M.*—*P. G.*—*R. G.*—*J. J.*—*M. R.*—*G. I.*—*B.*—*T. D.*—*H. L.*—*K.*—*B.*—*F.*—*H.*—*M.*—*R.*—*H.*—*C.*—*E.*—*H.*—*A.*—*S.*—*W.*—*R.*—*F.*—*J.*—*E.*—*J.*—*W.*—*G.*—*S.*—*M.*—*P.*—*F.*—*J.*—*Mac.*—*A.*—*H.*—*W.*—*T.*—*N.*—*W.*—*R.*—*E.*—*H.*—*J.*—*M.*—*W.*—*B.*—*J.*—*M.*—*W.*—*S.*—*M.*—*J.*—*G.*—*H.*—*Y.*—*M.*—*B.*—*S.*—*D.*—*T.*—*F.*—*E.*—*D.*—*F.*—*C.*—*G.*—*W.*—*Mac.*—*L.*—*E.*

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NO VEGETABLES.

SUCH is the title of a lengthy leading article in the *Pall Mall Gazette*, written, I should fancy, by one of our American cousins, judging from the writer's wonderful experience of English-grown fruits and vegetables. The article in question commences with the statement that "no country can grow both good mutton chops and good fruit and vegetables, and as England excels in raising the former, the same causes deny us the possibility of producing the latter; for while herbage requires copious rainfalls, fruit and vegetables require copious sunlight, and that is why we have none of them. Our only good vegetables are such as young Rhubarb, Seakale, Asparagus, and Celery, which are the blanched sprouting shoots of perennial plants; these come mostly in spring-time, and are all the better for a little wholesome soaking." This enumeration is quite sufficient to show the writer's acquaintance with English vegetables, and the whole article might well be allowed to pass unnoticed, but unfortunately (or fortunately rather, as I believe it will ultimately prove) there is a widely spreading notion that London is almost without a supply of vegetables. Now, I would ask the writer of the above article, or any one else who entertains a similar opinion, to visit Covent Garden any Saturday morning, say about five o'clock, between May and September, and then say if there are no vegetables in London. The article in question goes on to extol the "fruity vegetables of America, such as the Tomato, red-fleshed Water Melon, primrose-skinned Squashes, golden Pumpkins, and that best of all earthly vegetables, green Indian Corn, and condemns all our Pulse; our Beans are stringy, our Peas are old and hard before they are big enough to pick, and our Cauliflower and Broccoli are neither so white nor so delicate in flavour as the American." Indeed, all the Brassica tribe he seems to ignore as beneath notice. Lastly, comes a sweeping attack on our fruits, which are even worse than our vegetables, with the exception of our hothouse Grapes, which he allows are the best in the world. Our Peaches are a success, our Apples a national failure, and our "Pears a standing insult to human intelligence." Now, with all due deference to our American cousin, I think the whole article in question fully entitled to the observation just made. Whoever heard of Celery being a perennial, or of a spring crop of edible flowers, or of top Artichokes with soft, starchy pulp, &c.? How does he manage to get white Cauliflower under his hot, scorching sun? What Peach grower will believe that our climate is favourable for Peach culture? or who will persuade our Apple growers that any country can grow better flavoured fruit than our own? and yet the writer asserts that Peaches are a success and Apples a national failure.

W. J. LOBJOIT.

No vegetables!—I never before saw so many mis-statements concerning matters of fact as in the article with this heading in the *Pall Mall Gazette*. The writer has evidently been in America and looks back with regret to some of the products he found there, but that is no reason why our English soil and climate and the products of our gardens should be misrepresented by one who looks at them from no familiar standpoint. I, too, have been in America—went, indeed, for the purpose of seeing

the produce of her gardens and fields, and have a very pleasant recollection of their abundance and variety, and am, therefore, the better fitted to correct statements harmful in their harsh violation of facts. If they were indeed true, no Englishman would be justified in going to the expense of a garden. In the very first line I meet the phrase "*Seakale and Asparagus—our only two eatable greenstuffs*," a pretty statement to make of the country which of all others has the greatest variety of "greenstuff." The different kinds of Kales, Cabbages, Coleworts, Sprouts, Savoy, purple Broccoli are in no country so generally good or so varied as in the British Isles, and they are also the most wholesome, and, take them all the year round, the most palatable of green vegetables properly cooked, which they never are in a London restaurant. Americans have spoken with pleasure to me of the tenderness and freshness of young greens in this country in summer when theirs are so often fibry and hard. "*You never tasted green Peas in your life*" is said to be the expression of an American in a London restaurant! Well, the truth is exactly the opposite. Perfect green Peas are not often eaten out of England. Our varieties of Peas and their culture are admirable, and this is admitted by none more than by the Americans whose climate generally ripens off Peas too quickly. The Peas in a well-managed English garden are a delicacy not surpassed in any country, and under good management they last for months. Let it not be forgotten that the grower of Peas for the market frequently allows them to get too large, so that they may have bulk in the pod and bushel. That "*our Peas take too long growing and have got old and hard before they are big enough to pick*" is a sentence that for truth and beauty might well rank with the choicest stories ever told "out west." We grow the tenderest Peas in the world, and our climate allows of the longest season of Peas. "*It is impossible in the same country to have good meat and vegetables*" is a piece of nonsense that pulls one up agast, even when mercifully remembering the exigencies of men who write articles on things of which they know nothing! Is it possible that any man could walk through the markets of Paris, London, or Vienna and pen such words as these? The conditions that go to make good meat and good vegetables very frequently exist in perfection in the same country!

"*The fruits, seeds, pods, flowers, buds, and other miscellaneous objects which we class from the culinary point of view as vegetables all require copious sunlight.*" Not so; most vegetables, save the Tomato, thrive admirably with the amount of sunlight we have in England and Northern France. The only time the London market suffers from want of vegetables is when we have some weeks of sunny weather in summer, when the market gardens begin to fail round London. The Tomato alone we fail to grow, generally from want of sufficient heat to develop it bravely in the open air, as one may see it in the whole of North America, from California and Utah to the Atlantic States; but the statement that "*we never have sun enough to ripen them properly, and even with all the appliances of modern gardeners they never get thoroughly red and soft throughout in our gardens as they do in the open air under a Canadian or Italian sky*," is untrue. Our best gardeners grow them admirably, tender in flesh and brilliant in colour. For the market they are also well grown in the neighbourhood of Worthing; but by reason of the indoor culture they are often very dear. I believe that we will eventually get really good Tomatoes at a fair rate by rapid transit from some warm country, if not from America itself. It is so tender a fruit that special

means of packing must be devised. The imported Tomatoes in London now are very often half rotten as they are served in the restaurants. Green Indian Corn we miss—an excellent vegetable, and one for which no canned rubbish can compensate. That English Beans are all stringy is just as true as some of the foregoing statements. Many delicate Beans are grown perfectly in our climate, and if those who grow them allow them to become hard and stringy before gathering, that is not the fault of the Bean or the climate.

But we are said to be strong in salads; whereas the truth is that the French beat us as much in these, or more, than we do the French in Peas or Seakale. The Artichoke (Globe) may be perfectly well grown in England, but no general taste has ever been developed for it. That "*our Cauliflowers and Broccoli are not nearly so good as the American*" is a statement that in charity we will suppose was made after due examination of certain half-decomposed specimens heated on their way to the London markets. Our Broccoli is excellent, and the best in any country. Cauliflowers are only grown better in the market gardens of Paris and Naples. "*Better*" I use in the sense of larger, for the truth is that nothing can surpass the English-grown Cauliflower cooked fresh. Then it seems our Vegetable Marrows are a "*miserable farce*," though that is the only vegetable of the Gourd tribe after the Cucurbit that we grow systematically well. In no other country does one see so many Vegetable Marrows as in this. In other countries other kinds of Gourd take its place, and we miss here the abundant and good Squashes and Pumpkins of the American fields and gardens—surely no reason for denying us what we have in abundance. To tell us that for "*Plums and Gooseberries we must go to America*" is a startling statement indeed, considering that the Curculio has made the cultivation of the Plum impossible in Eastern America, and that the Gooseberry will not thrive there. The most delicate in flavour in its finer forms of all our native fruits, this last will not, unfortunately, produce good fruit in either America or Australia. In America there are a few native substitutes or hybrids, but they are very poor. It is in Blackberries of native races, which are not mentioned in the article, that the American garden is so strong. They are so good, that they surprise us. The Raspberries are good, too. There are many Strawberries, but in flavour they are not so good as our best kinds. There may be occasion to go to America for a good Water Melon, an excellent field or Musk Melon, a Buckwheat cake, a head of green Corn or a Pumpkin pie, but certainly not for good Strawberries.

The true reason why we seem to the visitor to our London restaurants to have no vegetables is because the cooks of Europe have served an apprenticeship of a thousand years on the carcasses of ox, pig, sheep, deer, goose, hare, and other game. We are meat-eaters because our fathers had little else to eat. The plains and green hills of the cold north were dotted with wild grazing animals, as an English park is now dotted with deer or a western prairie with antelope and bison; some men killed and some cooked. There was no green meat worth eating. A few generations only have passed since our now commonest vegetables came from the Continent. We are adding to their number every day, and thus by the aid of cultivation we are winning back our way to a simpler, healthier food, and one more like what man enjoyed in the tropical or sub-tropical regions, whence he originally came. But the education of the cook bars the way to progress. Even when he gives us French Beans, they swim in butter. The French cooks, supposed to be the best, systematically make the

natural flavours of the many delicate vegetables of their markets secondary to that of butter—now, alas! often only cart grease or hardened oil. In our restaurants the best fish and meat in the world are always procurable. The vegetable kingdom is usually represented by a mass of ill-smelling Cabbage and a boiled Potato; nevertheless, at the very time that this may be witnessed in restaurants our gardens are full of tender vegetables. No doubt we may have much to do to improve them, and we ought to grow many more than we do, but it will all be useless until there is a revolution in our modes of cookery, in the sense of cooking and serving for their own sakes, and in most cases without the aid of the animal kingdom the more delicate green vegetables and fruits that are and may be grown. Old or inferior vegetables require the coarse art of the cook, and must be saturated with grease and spices to make them edible. The true cookery is only to deal with the best and tenderest of each kind, and jealously preserve its flavour; but this art is in any general sense yet unborn. Those who know our markets best can certify that no one connected with hotels or restaurants of any kind ever takes the same trouble to purchase the best vegetables that they do with meat, fish, or game. They do not know or inquire after the best quality, much less pay for it, with the single and occasional exception of the Potato. Our garden products should not be judged by a visit to any restaurant, however good.

W. R.

GARDEN THOUGHTS.

THERE are interesting analogies between a delightful holiday and a good dinner, between the refreshments of the mind and the body. Both must be approached with a keen appetite, and there is no appetite so powerful in its appreciations as that which is produced by work. Both should be enjoyed with companions whose tastes are congenial and whose friendship is sincere. In both there should be some special excellence as to the quality and the preparation of the food.

With these adjuncts, after anxious and continuous labour with friends "whose hearts are of each other sure," I went on the 18th of March, a bright and balmy day, to see that which I believe to be at these presents the most beautiful garden in all England! It has been my happy privilege to visit many a fair ground and goodly heritage between the border and the Land's End; I have admired in many a pleasant plot those tasteful and skilful combinations of Nature and art which are not to be found in other lands, even where climate and scenery are far more favourable than ours; but Belvoir in its vernal loveliness excels them all!

There are, of course, many gardens more extensive, having a longer succession and a more varied display of beauty, such as Mons. Doguin's glorious grounds at Cannes, overlooking the Mediterranean, or those of the Duke of Buccleuch at Drumlanrig, but as a spring garden, to be visited in March and April, I claim for Belvoir a regal (if I were a Roman Catholic I should say a papal) supremacy. The position is perfect—sunny slopes, "green and of mild declivity," or steep and stony, suggesting alpine plants and pathways, with grand old trees, evergreen and deciduous, over which, as you walk on the higher ranges of the gardens, you see the lake beyond, and through which as you wander below the picturesque towers of the castle.

The arrangement of the beds, banks, groups is perfect also; colour just where it is most

effective, of every hue, but always in congruity; no gaudy glare to frizzle your eye-lashes; no sensational contrasts, which seem to say, "Now, did you ever?" but an exquisite freshness, brightness, unity, repose. With the exception of a brilliant crimson Rhododendron, who, I must say, gave me the idea of having, in the parlance of our day, "a good deal of side on," though he was only there on suffrage as an old inhabitant of that part of the garden before the spring flowers came, I did not see a flower or shrub which could have found a more happy home.

And, *apropos* of arrangements and felicitous disposals, there was uppermost that day in my garden thoughts the glad conviction that the right man was in the right place at Belvoir. I remember a general disappointment and lamentation when Mr. Ingram did not succeed his father in the royal gardens at Windsor, and we, his friends and brethren, murmured in our tents; but now the winter of our discontent is not only over, but made glorious summer when we go to Belvoir and see in that fair scene a work which he could not have achieved even in the beautiful home and under the gracious encouragements of our beloved Queen.

Belvoir *était toujours belle voir*—ever beautiful—in its stately site upon its wooded hills, but the gardens (always excepting the vegetable kingdom of eight acres, walled round) were comparatively small when Mr. Ingram went to them. Gradually, year after year, by an amount of persevering labour, done by his own staff, which few would have faced, with an occasional remonstrance from his kind and generous employer, the duke, "I suppose you won't be satisfied until you get to Knippton" (a village about three miles away), he has developed his plans, carted countless tons of stone and soil up the steeps, cleared his ground, dug and planted, turned the sombre grove into a glowing garden, and "made the desert smile."

What flowers does he grow? All those which come to us in the sweet spring-tide, and having a natural grace and aptitude (not to dwell upon their delicious fragrance), which is not to be seen in our summer bedding out. The Viola (let me express, *en parenthese*, my admiration of a wonderful double white Violet which I received this morning from the Swanley Nurseries) and the Primulas, in all their infinite varieties; Anemones, brilliant as a guardsman's jacket, or white as his helmet's plume; Hyacinths, in their size, and scent, and brightness, as happy as though they were in Holland; the Narcissus, bearing its beautiful head, like its namesake, when he admired himself reflected in the fountain, but without his fatal conceit; sheets of Myosotis, Arabis, and Aubrietia, the latter from selected seed, and notably large and good; the Tulip, holding up its golden chalice for a shower.

Charming contrasts! Deep blue Scillas glowing here and there amid the white Arabis; the silver leaf of the Eucynthus, intermixed with the roseate flowers of Erica carnea; the scarlet Anemones, rising out from a patch of Forget-me-nots. Novelties! That is, to me. A pale pink Aubrietia from Mount Athos; Chionodoxa Lucilia, an exquisite little starry flower, blue, with white centre; a deep rose double Primula, of which I forget the name; Azara microphylla, a shrub with yellow flowers, giving forth a strong perfume, exactly like Vanilla, and, as these flowers are much visited by bees, Mr. Ingram anticipates a new delight for epicures in his "Vanilla Honey." Olearia Hosti, a white

flowering shrub; *cum multis aliis*, of which I have no record.

Which was the most beautiful flower of all? Saxifraga ligulata, first introduced into this country (so Paxton tells us) from Nepal in 1821, with its great, round, glossy leaves, and its beautiful bunches of rosy blooms, it is certainly the belle of the season 1882 at Belvoir. I shall never forget my first sight of it, forming the central line of a large bed, surrounded by dark purple Hyacinths and other lovely handmaids, but far eclipsing them all. Mr. Ingram thinks that he has in Saxifraga Schraderi a *debutante* for next spring, who will be even more admired than her sister, but I do not expect nor desire to see anything more winsome, and I fear it may be some time before we meet with Miss Ligulata in that perfection of health which she is enjoying now in this propitious and exceptional year of grace.

At the foot of the slopes the Aponogeton (Cape Pondweed) raises its fragrant white flowers out of a small pool. Water is a recent introduction into these gardens at Belvoir, and was discovered (though some who read this may not believe it) by a man walking with a forked stick in his hand on the top of the slopes. As he goes slowly on, holding the stick just above the surface of the ground, the presence of water below affects him by some process of an electric nature, and causes the fork of the stick to turn upward. As a multitude of witnesses can be heard, and the water is at this moment flowing down the hill, I do not advise doubtful persons to "back" their unbelief in any sums of importance.

There is only one thing connected with Belvoir which I do not like—the clock; it goes much too rapidly. At St. Paul's (where it had been my privilege to work in my vocation for some days before I visited Belvoir) the clock was stopped for preparations which are being made to receive the great new bell, and the dean and chapter received an angry letter from an indignant citizen, complaining of the fact, and requesting that men should be employed to move the hands on every minute. I should have liked, on the contrary, to have stopped Time himself at Belvoir, placed the garden roller in front of his scythe, and so prolonged that happy day.

Linger, I cried, Oh radiant Time! thy power
Has nothing more to give; life is complete;
Let but the perfect present, hour by hour,
Itself remember, and itself repeat.

But Time pass'd on, in spite of prayer and pleading,
Through storm and peril; but that life might gain
A peace through strife, all other peace exceeding,
Fresh joy from sorrow, and new hope from pain.

The last and the happiest of my garden thoughts was this: there is but one Belvoir, but everyone who admires those lovely beds and slopes, if he has a plot of ground of his own, however small, may reproduce some of its beauty. With a few large stones, arranged as he sees them there, he may have a miniature rock garden "thick inlaid with patens of bright gold," and silver, and glowing gems, which will most surely repay his loving care with an annual exhibition such as no painter in the world can equal.

S. R. H.

New Tritomas.—Both the Tritomas mentioned in THE GARDEN (p. 162) came from Max Leichtlin, of Baden-Baden, from whom I got them a few years ago. Both are varieties of T. Uvaria, or Kniphofia aloides, and bear enormous spikes of flowers larger than those of the well-known T. Uvaria grandiflora. The variety T. no-

bilis has the character of *T. grandiflora*, but its flower-spikes are larger. The variety *T. Saundersi*, formerly called *T. magnifica*, has a less broad, but much longer spike than that of *T. grandiflora*, and its colour is more equally red; it has, perhaps, the largest flower-spikes among the *Trifloras*, and is two or three weeks earlier in flower than *T. grandiflora* and *T. nobilis*. This last seems to have been obtained by Max Leichtlin from England.—J. H. KRELAG, *Haarlem*.

IN THE BELVOIR CASTLE GARDENS.

MR. INGRAM has surpassed himself this year by the use he has made of that splendid spring-blooming Saxifrage, *S. ligulata*. He has used it freely to bring warmth and brilliancy into mixed borders, but has shown its true value by massing it at many points in large beds. One large oval bed in the garden, on the Duke's Walk, and lying down towards the bottom of the slope, seems to light up the whole garden and the woods around with the brilliancy of its rosy sunset glow. It is really worth anyone's while to visit the Belvoir gardens to see this plant growing in such exceeding luxuriance, and a coloured picture in *THE GARDEN* of this very bed would open the eyes of many of your readers to what novelties are taking place in the treatment of the spring garden. *S. Stracheyi* Mr. Ingram also uses, Herr Max Leichtlin having sent it to him, but as yet his stock is not large enough to be too freely used. One large bed, quite lovely in its delicacy, consists of *Scilla sibirica* and a dwarf-growing white *Arabis* mixed together, not in lines or patterns, but growing as they would do in Nature. Another white plant with a very charming style of growth is *Cardamine rotundifolia*, its round, handsome heads of white bloom and pretty, circular leaves being very effective. *Hepatica angulosa* is pretty, and freely used. *Doronicum austriacum* is covered with big yellow blooms, and its peculiarly rich green foliage makes it, in me, an attractive plant. As to *Aubrietias*, Mr. Ingram's own seedlings come all colours, from pale lilac to rich purple, and the flowers are so large that many would not recognise them to be *Aubrietias* who are only familiar with the usual small-flowered kinds. The brilliant scarlet *Anemone* is here most judiciously used—a few blooms appearing here and there, not too close together, and giving a marvellous effect of light on rocky points and in corners. A very brilliant colour like this should never be massed; when so treated, its value, artistically, is lost, and it is simply a glare of colour, and, moreover, the elegance of the individual bloom is, when thus treated, lost. *Anemone blanda* is now at home at Belvoir, and is one of the most charming additions of late years. It would take pages of *THE GARDEN* to describe all the beauties of the Belvoir spring garden, which seems year by year to develop new loveliness under the fostering care of its excellent custodian. H. STUART WORTLEY (Colonel).

PLANTS IN FLOWER AT BINGHAM.

THE welcome and instructive notes of Mr. Elves on his bulbs in flower suggest my sending a few about my own. Of Tulips from Central Asia now out, or coming into flower, there are several most desirable kinds—*Tulipa altaica*, *Kolkowskiana*, *iliensis*, *Biebersteiniana*, and *flora*, *triphylla*, *Holtzeri*, *Kesslingi*, and *turkestanica*. Of these the showiest is *Holtzeri*, a good yellow, and larger than the other species. These early Central Asian Tulips are really great acquisitions, because they flower with the Crocuses and Snowdrops, and are never injured by frost. I suspect they require a stiff clayey soil, as Mr. O'Donovan tells me that the Tulips he saw on his way to Merv were growing in the stiffest white marl, soapy and squasy in winter when not frozen, and baked into a brick-like texture during the terrible summer. *T. Greigi* is now showing bloom well, and with its splendid foliage is one of the grandest flowers brought of

late into the English flower garden. *M. Lebeuf* speaks to me very highly of *Tulipa Alberti*, silvery-leaved, and even more splendid than *T. Greigi*. Of the *Scillas*, all have been good this spring, whether *sibirica*, *bifolia*, and its varieties, *taurica*, or *Puschkinia libanotica*, and the beautiful *Snow Glory* (*Chionodoxa Forbesi*). For this last plant all gardeners must owe an eternal debt of gratitude to Mr. Maw. There is a magnificent batch out now at Kew by the long wall. Of *Anemones*, *A. fulgens* has for the first time with me shown its true character in this continental spring. A batch of this, a yard across certainly surpasses in colour the finest scarlet Poppies. *A. blanda* began to flower at Christmas, and is still going on, while the sky-blue one, *apennina*, and its white variety will soon be at their best. *A. ranunculoides nemorosa* is showing its cream-coloured flowers before its rich yellow brother, *A. ranunculoides*. A few Snowdrops still remain. *Galanthus serotinus* is quite at its best, *Elwesi*, *Melvillei*, *Imperati*, *plicatus*, and *Redoutei* having just produced their last blooms. *Redoutei* is very curious by reason of its large bright green leaves like *Leucojum vernum*, which has also been very beautiful.

I hardly knew till this year what splendidly decorative plants these *Hellebores* were, beginning with the giant Christmas Rose in October, and still continuing with such contrasts as *H. colchicus* and *H. luteus*. I have a great number of seedlings carefully hybridised which may bloom next season; the seed boxes of hybrids and non-hybrids are well marked, by the smaller size of the seed leaves of those hybridised. The Berlin seedlings have been very fine, especially a peachy form with rich spots, which is always in bloom after September, and the lovely white form with blood-red spots known as *Commenzienrath Benary*. The *Iris* of the Xiphion group have been very good; *caucasica* now coming on; *reticulata* and *alata* over; *Kolkowskiana* I have not yet flowered, though it is doing well, but *Histrio* has disappeared altogether, and I hope the Palestine Exploration people will send us a batch. I wrote to them two years ago to get this bulb, but Mr. Harpur Crewe is now forming a little society to urge the importance of collecting bulbs, and now we are more likely to get what is so much wanted. I hope some one will get *Helleborus vesicarius*, packing the seed in soil directly it is ripe.

The early Cyclamens and the Hepaticas are past their best. There is one magnificent red fellow 1½ in. and more across the bloom by careful measurement; also some beautiful seedling varieties with white centres, raised by M. Swaelman, of Ghent, and a blue with a deep blue centre, a cross between *angulosa* and *cœrulea*, raised by Max Leichtlin. The *Muscari* are just coming out, including paradoxum, which is one of the loveliest of spring flowers. *Sisyrinchium grandiflorum* in a good batch has been very effective and lasting, and in its white form more beautiful than any Snowdrop. Of the Fritillaries, the brown *tulipifolia*, makes a good contrast to the little yellow *F. armena*, and *F. pudica*, which is now establishing itself, and will, I think, be as manageable when left alone as a Snowdrop. All the Fritillaries want time, and will not bear to be long out of the ground, or to be moved when once they have started growth. I have a large collection, and hope to make myself useful by hybridising them. The yellow and white forms are very lovely, and the quiet beauty of the brown varieties is a rest and a contrast to the gayer flowers of spring, just as Mr. Hole once declared a bed of Parsley was a relief after looking at a modern red and yellow ribbon border. With the Fritillaries there is also blooming the strange Central Asian *Korolkowia*, whose other name (*Sewer zowi*) I never did and

never shall know how to pronounce. Dog's-tooth Violets are now at their best, but we badly need some deeper coloured varieties. Daffodils of all kinds are coming on, and with them begins another phase of spring. There are more than a hundred different varieties of Narcissi in my border. I always think the most beautiful is the variety known as *Leedsii argenteus*. *Bulbocodium vernum* brings up the rear with its Crocus-like blooms, and, strangely enough, a new variety, *Colchicum luteum*, from Central Asia, is showing, has rich yellow colour, so the resemblance is complete.

Bingham, Notes.

FRANK MILES.

P.S.—I hope soon to send a few notes on Nymphæas, of which I have a dozen hardy sorts.

THE CYCLAMEN AT HILLINGDON.

THE contrast between the Persian Cyclamen figured in the *Botanical Magazine* in 1790 and the Cyclamen of to-day clearly shows what rapid strides with regard to improvement can be made in the case of certain classes of flowers in the course of a generation or so. This early illustration of Cyclamen persicum represents it admirably in its primitive state as cultivated by Philip Miller. The flowers are very little more than 1 in. long, the petals ¼ in. broad, and the colour white with rosy purple mouth. Such was the Cyclamen ninety years ago. The initiative step as regards the improvement of the Cyclamen does not date very far back; indeed, it is only within the last decade that any very marked deviation from the normal type has been observable. One of the most ardent workers in the field of Cyclamen improvement and culture is Mr. Little, of Hillingdon Place, Uxbridge, who, with his enthusiastic gardener, Mr. Wiggins, himself a veteran in this particular track, has worked steadily on for many years with the definite object in view of bringing this beautiful spring flower to the state of perfection at which it has now arrived. To these Cyclamen growers in a great measure the thanks of the flower-loving public are due for the varied hues, the large size, and the fine form to be found amongst the Cyclamens which now adorn our gardens, and which team in our flower markets.

In Mr. Little's garden may be found a display of Cyclamens such as one rarely meets with. If one could imagine a greenhouse some 100 ft. or more in length filled for the most part with huge plants, chiefly in 6-in. pots, with broad, healthy tufts of foliage, and literally crowded with flowers representing every hue from the purest white to the most intense crimson, an adequate idea might be formed of Mr. Little's Cyclamen house. The points he has striven to work up to has been a close, compact, yet vigorous habit, large broad foliage and plenty of it, forming a dense tuft from which should arise a thicket of short and stout flower-stems well thrown up above the foliage, and carrying blossoms of large size, but not coarse, with broad petals all well reflexed and forming a perfectly symmetrical inverted cone. These points have been fully accomplished in the finest of the varieties raised here, and there scarcely seems room for further improvement.

With regard to the colour—an important consideration—Mr. Little has, by judicious hybridising, apparently reached the limits in both extremes; he has obtained the purest white, the deepest crimson, the clearest rose, and every intermediate shade, besides a form called *striatum* with longitudinal stripes of purple down the centre of each petal. The great point is to keep the colours pure and clear; it has been found that too great a liberty can be taken with crossing deep coloured forms result-

ing in an undecided, muddled hue, as in the case of some crosses between a deep purple named Royal Purple and some of the deep crimson. In this collection anyone could single out the several distinct types. Prominent amongst the named sorts are White Gem, the charming pure white variety certificated last week at South Kensington undoubtedly the finest white yet obtained, possessing, as it does, all the properties of a good flower, being large, with uncommonly broad petals of great substance and of snowy whiteness; Crimson Gem, which also was awarded a certificate of the first class, is a wonderfully deep purple, and as regards habit and free growth all that can be desired; Rosy Gem is, Mr. Little considers, the finest of the colour he has yet managed to secure, the flowers being produced in dense clusters above ample healthy foliage; Ruby Gem, certificated three years ago, is still a desirable sort, as is also Gem, a delicate lilac-tinted kind, which possesses all the high qualities so much desired. It is a remarkable fact that this kind has been one of the parents of most of the newer varieties, for example, of White Gem and Crimson Gem, two extremes in point of colour.

Throughout the collection there is an almost entire absence of the giganteum strain pure and simple, which Mr. Little considers too coarse and unrefined, though he has taken advantage to secure robust growth and foliage in his varieties. The absence, too, of any of straggling growth is conspicuous, and also of any that do not possess the requisite brilliancy of colour.

Besides the Cyclamen, Mr. Little devotes special attention to a few other classes of plants, principally the decorative, show, and fancy type of Pelargonium, the Chinese Primula, the Cineraria, the Amaryllis, and the Chrysanthemum. At the date of our visit the only two classes still in beauty were the Cinerarias and Primulas, though the latter were past their best. There have been raised here some wonderfully fine varieties of Primula, the best of which we have alluded to from time to time. The sorts still in beauty were Meteor and Meteor Improved, the latter a decided advance on the original, the colour being an intensely deep velvety crimson, the flower large and circular, and the truss and foliage perfect. Ruby King Improved is another fine acquisition, its chief characteristics being flowers well thrown up above the foliage. Rose Superb, Magenta Gem, Carmine Gem are also all very fine varieties in their respective colours. Amongst whites, White Perfection, which carries huge pyramidal trusses of large pure white blossoms, not in tiers, but in compact heads, is one of the finest whites we have seen. Alba magnifica is also a fine kind, and it is grown here in a style in which its beauty is shown off to advantage.

Cinerarias have made a grand display, some hundreds of plants being in full flower at one time. The strain represented was Sutton's Dwarf Compact, a superb strain characterised by stout, close growth and huge flattened heads of large blossoms, perfectly circular in outline, and with colours of all hues. Mr. Wiggins' own strain, too, is a very fine one, dwarfier than the others, yet with large heads of bloom well borne up above the foliage. The points aimed at here with regard to the improvement of the Cineraria are compact and vigorous growth, abundance of flowers of fine form and substance, a great variety of colour, the abolition of grey centres and the substitution of black. A small collection of double-flowered sorts was likewise in fine condition.

The Amaryllis, of which some hundreds of bulbs are cultivated, were only represented in

flower by a few of the early flowering forms, but these augur well for a grand display of this showy flower.

W. G.

EDITOR'S TABLE.

MAGNOLIA XULAN FL.-PL., from Mr. Bankhart, pretty starry, many-petaled flowers, but not double in the usual sense. We should take every pains to make these hardy summer-leaving Magnolias happy in our gardens. The standard trees at Syon form a picture one never forgets. From Messrs. Hooper, Covent Garden.

LACHENALIA TRICOLOR.—Mr. Moore very properly praises this for its beauty when well grown, and it is well that such a plant should become popular, the taste having been rather too pronounced for a long time in favour of showy colours. The quaint and delicate colours shown in such plants as this are very beautiful.

ANDROMEDA JAPONICA.—This is now beautifully in bloom in Mr. A. Waterer's nursery at Knapp Hill. We were, we believe, the first to call attention to its remarkable merits as an evergreen flowering shrub. A figure of it was published in THE GARDEN from a drawing by Mrs. Duffield (Vol. XII., p. 424) from specimens gathered in Thibaut and Keteleer's nursery at Sceaux, and sent to London by post.

HARDENBERGIA LINDLEYANA.—Mr. Moore, writing from Glasnevin, whence he sends us some of this elegant purple New Holland Pea flower, praises it for its graceful and profuse bloom. Such plants were always welcome in the spring in the greenhouse of a generation ago, and deserve to be more frequently seen, trained over light arches, up slender pillars, or in any way in which their twining, graceful habit may be seen to advantage.

DENDROBIUM MACROPHYLLUM.—From Mr. Marcus Voss's choice collection of Orchids at De Montfort House, Streatham, come some unusually fine blossoms of this Dendrobium, representing the giganteum variety. Some of the flowers measure upwards of 5 in. across, and the whole blossom is of that delicate lilac-purple that makes it so attractive. The perfume of this Orchid is peculiar, resembling that of Rhubarb root.

BROWNEA ARIZA.—A most noble plant, with a many-flowered head of splendid cheery scarlet blossoms together as large as a Naples Cauliflower. What it must be on the plant at Glasnevin, and still more in its native country, one wonders. It is as if all the vivid beauty of the Tropics were illustrated on this bush, which, with its fine leaf, must be a glorious thing freely grown in the open air. It is well that we have our botanic gardens to show us types of vegetation that cannot be commonly grown.

EVERGREEN BARBERIES.—Among the few shrubs that may rank as good natives in hardiness, in earliness, and in every good quality are these—they are so thoroughly good in form, both in flower and leaf, and so fragrant in their early racemes of profuse bloom! Mr. Stevens sends us one or two forms of the common kind—one of the best plants that have come from the north-west coast of America. It is one of the few bushes we never see out of place, though much more ought to be made of it, especially in situations not congenial to a great variety of evergreen plants.

NICOTIANA AFFINIS.—We have been very much pleased with the beauty of a box of this plant from Messrs. Sutton, of Reading. We have long grown plants of this genus, but are really surprised at the grace and large size of this, its foliage being also large. Messrs. Sutton say that the plants were sown on the 18th August, and that they have been flowering for two months past. We are not quite sure that the species is affinis, but of the value of the plant there can be no doubt.

SAINT BRIDGID'S ANEMONES from the Hill of Howth are really magnificent. They are 4 in. across in several cases, strong and stout. They are varieties of the Poppy Anemone, with large black centres, and are generally semi-double. The colour is scarlet, varying to delicate lilac, purple, and crimson. We have never yet seen the garden in which justice has been done to the many varieties of the Poppy Anemone. They are a garden of delight in themselves alone, neglected or forgotten as they have been for many years.

MUSCARI HELDREICHI.—This is a charming plant from Mr. Stevens. We cannot have too many of these beautiful Grape Hyacinths with their little headed bells of delicate blue and purple hues. The old M. comosum and its varieties are, however, as good as any, and exquisite as regards delicacy of colour. The above-named kind has larger and more open bells. All the species are of easy culture, though some, being rare and much divided, seem more slow of increase than they really are.

CAMELLIAS OUT-OF-DOORS IN SUSSEX.—A handsome basket of Camellias from Mr. C. R. Scrase Dickens. They are grown in a Sussex garden, (Coolhurst, Horsham) on plants that have been growing in the open air without protection for forty and ten years respectively. There are single and double kinds, of which the foliage and flowers are both good and fresh. Over a considerable part of the south of England the Camellia is perfectly at home as a hardy shrub, even in bad years.

GREVILLEA PUNICEA.—A bright spidery-looking flower, and one of the types of New Holland vegetation that might be worth growing into specimens. Nowadays we mostly have to look for these interesting plants in botanic gardens. There is something slow and stiff in their habit—at least as they are grown with us—which tells against them. What they are in the open air we have very little idea of. Many plants grown in pots and not very satisfactory in that way are quite different when grown in the open air. Mr. Moore also sends us Stiffia chrysantha and Cunonia capensis, two very striking plants.

RHODODENDRON ARGENTEUM.—It is impossible to do justice to this Indian Rhododendron with its silvery white bells, beautiful in form and stained with deep claret at the bottom, which shows faintly through the base. Mr. Mangles kindly sends us a noble truss of twenty-five blossoms; both leaves and flower-stems are silvery. If travelling rewards were ever to take the place of testimonials as an acknowledgment for a long life of devotion to flora, perhaps a few months on the Indian hills among these great Rhododendrons would be of all earthly enjoyments one of the most welcome to the gardener.

FLOWERS "from St. Bridgid's boycotted garden, in Co. Kildare, toward which no hand

has been stretched out since the middle of last harvest, when all labourers in employment were ordered off by the Land League." Prominent among the flowers thus neglected were some uncommonly fine examples of the Poppy *Anemone*, large, very double, and brilliant; *Dielytra spectabilis*, very fine; the double *Kerria japonica*, brighter than we usually see it about London; *Daffodils*, including the white; *Narcissus cerneus*; the Snake's-head (*Fritillaria Meleagris*); *Grape Hyacinths*; *Wood Anemones*; *Empnolodes verna*; Japanese Quince and Evergreen Barberries, all bright and fresh as in gardens under the best of management.

ORCHIDS.

NOTES ON ORCHIDS IN FLOWER.

THE Orchids are among the most noteworthy of the Orchids now in flower in Mr. B. S. Williams' nursery, Upper Holloway:—

Odontoglossums.—The glory of the Odontoglossum house is still the *Alexandre* and *Pescatorei* varieties, than which we have rarely met with their equals as regards the high quality of the blossoms—a fact which would seem to show that has lately been said about the inferiority of importations now-a-days is groundless. Here are crispums perfect models as regards size, breadth of petal, purity of ground colour, and exquisite markings; and the same remark holds good with regard to the forms of *Pescatorei*, some of which still in bloom measure nearly 3 in. across, and produced in those long branching spikes which constitute the chief characteristic of this Orchid. *O. Horsmani*, a form in the way of *Chestertoni*, is just now very fine. The flowers are moderately large, the sepals and petals heavily blotched on a white ground, and the lip marked with deep blotches of a deeper colour. Of the *O. luteo-purpureum* section, notably *O. Halli*, there are some remarkably handsome forms represented by specimens, also *O. triumphans*, *cristatum*, and the rare *O. polyanthum*. In a warmer house the earlier forms of *O. vexillarium* are in charming condition, some of them possessing so much of that depth of rose-purple on them and large sized blossoms as to merit the varietal appellation of *rubrum*, *majus*, &c. *O. Roezli*, both the white and the oculated form, are grandly in bloom in company with the *vexillariums*. There is one variety of the pretty *O. Rossi majus* that much attracted us. It has a blush-white lip with a deep crescent of purple running along the upper part adjoining the golden crest. It is very beautiful; indeed, we have never met with a similarly marked form before.

Zygopetalum Clayi is one of the handsomest hybrid varieties of this genus with which we are acquainted, and on this occasion, as we happened to meet with it in its finest condition, we were able to judge of its merits, which are of a very high order. It is showy in colour, free in flower, and a vigorous grower, and apparently as easy to grow as the old *Z. Mackayi*, which perhaps receives more ill-treatment than any other Orchid. It is a hybrid between *Z. crinitum* and *Z. maxillare*, partaking of the free growth of the former and the superb colouring of the latter. The flowers are produced numerous on long and erect spikes; the sepals and petals are of a uniform brownish purple, not blotched, but with a narrow green border, while the large violet-purple lip is beautifully pencilled and netted with white and deep purple. This very handsome Orchid was raised by Col. Clay, The Slopes, Birkenhead.

Trichopilia suavis alba is a charming variation from the pale pink colour of the blossoms of the original form, from which it differs only in the flowers being white; they are extremely chaste and delicate, and, moreover, deliciously scented. The variety *superba* is an Orchid that one seldom meets grown in a creditable manner, though when a good specimen of it is

in full beauty, what other Orchid will favourably compare with it?

Cymbidium eburneum Dayenum.—Amongst the numerous forms of this splendid Orchid this is one of the finest, being characterised by large flowers of great substance, pure white sepals and petals, and a labellum of the same ivory whiteness, except a marginal row of purple spots and a medial crest of bright orange-yellow. It is represented here by a fine plant now in flower.

Masdevallia triangularis.—There is a certain class of Orchids which, though not purely botanical in the sense that a *Liparis*, for example, is, require to be looked into in order to fully appreciate their beauty. Amongst these may be placed this curious little *Masdevallia*, which, though it carries a dozen or so of blooms, is scarcely noticeable, but on close inspection one recognises the exquisite markings of the singularly formed triangle-looking blossoms. It is worth growing and of easy culture. The showier class of *Masdevallias* are beginning to develop their season's crop of bloom, and, judging by their luxuriance, it will be fine this year.

Laelia harpophylla is a pretty plant, the colour of which is almost unique even among Orchids. The nearest approach to it is *L. cinnabarina* and the glowing apricot-red hue of *Ada aurantiaca*, of which, by the way, there are some grand plants in flower here, representing the finest form of this handsome Orchid, both as regards colour and racemes. The flowers of *L. harpophylla*, which are some 2 in. across, have narrow sepals and petals, and an exquisitely white fringed labellum. It is charming as a coat flower, not being too large, and it lasts a long time out of water.

Other noteworthy Orchids in flower include among *Cattleyas* numerous forms of *C. Trianae*, notably the pure white, the chaste ivory whiteness of which is truly lovely. There are several so-called white *Cattleyas* in cultivation, many of which are tinged with lilac, but in this there is only a faint dash of lemon-yellow to mar its purity. *G. maxima*, a species having a beautifully veined lip, is likewise finely in flower. Of the numerous forms of *Lycaste Skinneri*, one called *gloriosa* is particularly noteworthy, the sepals being uncommonly large, especially the dorsal one, which is almost square at the apex. There are some excellent deep coloured forms, too, in flower. Of the many *Dendrobies*, *D. Finleyanum* is attractive, and one that should be more cultivated than it is; the golden lips of the flower and the lilac-tinged sepals make it very distinct. Amongst forms of *D. Wardianum* to be found here one has flowers $\frac{1}{2}$ in. across, and is the finest we have yet seen, its colour being brilliant and well defined. *D. litiflorum* and *crystallinum* are other pretty *Dendrobies*. Of *Dendrobium glaucum* we noticed some exceptionally fine plants in suspended pots. Of *Vanda* Boxalli there is a good form in flower, deeper and richer than some we have seen, variable as this Orchid is in regard to colour.

W. G.

The Burmese Orchids imported recently by Messrs. Sander & Co., St. Albans, have turned out to be the finest in quality as well as in quantity that have ever been collected. The forms of *Dendrobium Wardianum* are specially fine. Mr. Percival sends a flower of one of them measuring 5 in. across and of fine colour. At St. Albans many are now in bloom, every one being extra fine in quality and many measuring $\frac{1}{2}$ in. across. Some plants of *D. crassinode* *Barberianum* are in bloom, all being equal and some superior to the plant originally so named. At St. Albans there is now quite a maze of Orchid houses, all of which are filled to overflowing with good things, among which may be noted in flower or bud large quantities of *Odontoglossum Alexandre*, *O. madrense*, *O. Rossi rubescens*, *O. Pescatorei*, *O. triumphans*, and some interesting hybrids. *Odontoglossums*, *Oncidium dasytle*, *O. Forbesi* (grand varieties), *Cattleya Eldorado splendens*, *C. Wallisi* (virginia-

lis), *Cymbidium eburneum*, *Masdevallia triangularis* (with many hundreds of its pretty flowers), *M. Chimera* (true), and several new *Masdevallias* not yet named may all be found here; indeed, the quantities of new plants in this nursery waiting for confirmation of the collector's descriptions, notably the immense black *Stanhopea*, lead one to expect the appearance of some good novelties during the coming season.—O.

Odontoglossum nævium majus.—I think "W. G." (p. 158) is mistaken when he states that Professor Reichenbach has lately given this name to an *Odontoglossum* of the gloriosum section. Some time back we flowered an *Odontoglossum* imported under the name of *nævium* *O. majus*, and no doubt from the *O. nævium*, *O. blandum*, and *O. crocidipterum* district. This was sent to Professor Reichenbach, who identified it as *O. nævium majus* (Lindley), and as *O. odoratum* (Reichenbach). There is no doubt that Lindley did name an *Odontoglossum nævium majus*, and also that as years rolled on every *O. nævium* got *majus* tacked on to it, just as all *Rossias* are *majuses*, all *Cervantesias* *decoras*, &c. Is there any one who has ever seen a *majus* from the typical *O. nævium*? I thought *O. cirrhosum* was it, but then Lindley also named that species.—J. E. SPYERS.

Orchids in flower in Mr. Peacock's collection, Sudbury House, Hammersmith.—

<i>Ada aurantiaca</i>	<i>Mormodes lentiginosa</i>
<i>Angrecum citratum</i>	<i>Odontoglossum Alexandre</i>
<i>Eletia hyscinthina</i>	<i>grandiflorum</i>
<i>Cattleya citrina</i>	<i>Aureolanum</i>
<i>Trianae</i>	<i>bictonense</i>
<i>Atlanta</i>	<i>Cervantesi</i>
<i>virginialis</i>	<i>cirrhosum</i>
<i>Cecelyne barbata</i>	<i>cordatum</i>
<i>cristata</i>	<i>Edwardsi</i>
<i>Colax jugosus</i>	<i>Halli</i>
<i>Cymbidium eburneum</i>	<i>Pescatorei</i>
<i>Cypripedium Argus</i>	<i>Phalenopsis</i>
<i>barbatum</i>	<i>pulchellum</i>
<i>bifidum</i>	<i>Roezli</i>
<i>nigrum</i>	<i>rossum</i>
<i>superbum</i>	<i>Rossi majus</i>
<i>Boxalli</i>	<i>ceruleus</i>
<i>Harrisianum</i>	<i>pallidum</i>
<i>Hartwegi</i>	<i>viride</i>
<i>insigne</i>	<i>Ruckerianum</i>
<i>niveum</i>	<i>tripudians</i>
<i>Roezli</i>	<i>triumphans</i>
<i>Sedeni</i>	<i>vexillarium</i>
<i>villosum</i>	<i>Wallisi</i>
<i>Dendrobium aggregatum</i>	<i>Oncidium ampliatum</i>
<i>majus</i>	<i>rus</i>
<i>Canbridgeanum</i>	<i>Cavendishi</i>
<i>chrysotum</i>	<i>cucullatum</i>
<i>superbum</i>	<i>chilophorum</i>
<i>crassinode</i>	<i>concolor</i>
<i>Barberianum</i>	<i>Kramerii</i>
<i>crepidatum</i>	<i>macranthum</i>
<i>Dalhouseianum</i>	<i>sarodes</i>
<i>densiflorum</i>	<i>seriatum</i>
<i>macrophyllum</i>	<i>spathulatum</i>
<i>nobile</i>	<i>trilingue</i>
<i>ceruleus</i>	<i>unguiculatum</i>
<i>intermedium</i>	<i>Phajus grandifolius</i>
<i>Fieriardi</i>	<i>Walchii</i>
<i>priminum</i>	<i>Phalenopsis amabilis</i>
<i>Wardianum</i>	<i>grandiflora</i>
<i>Epidendrum cochleatum</i>	<i>Lodenianthiana</i>
<i>fragrans</i>	<i>rosae</i>
<i>Laelia anceps</i>	<i>Schilleriana</i>
<i>pedunculata</i>	<i>Plumina fragrans</i>
<i>Leptotes bicolor</i>	<i>Plectone Hookeriana</i>
<i>Lycaste aromatica</i>	<i>Sobralia macrantha</i>
<i>Skinneri</i>	<i>Sophronitis grandiflora</i>
<i>rosea</i>	<i>Trichopilia suavis</i>
<i>Masdevallia ignea</i>	<i>Vanda tricolor</i>
<i>Lindeni</i>	<i>Zygopetalum crinitum</i>
<i>Maxillaria venusta</i>	<i>ceruleum</i>
<i>Miltonia cuneata</i>	

Phalenopsis Schilleriana.—In March, 1881, I saw three plants in bloom at Mr. C. Perkins', Kirkley Hall. The original plant had over 160 flowers on it, and the other two, which had been taken off a flower-spike on the old plant some years previous, had over 80 and 120 flowers each. I have lately seen these plants again in flower, and all with an increased number of blooms on them. The original plant had thrown up a rooted growth from last year's spike, which Mr. Perkins kindly allowed me to cut off and take home, and this plant, not twelve months old, then carried no fewer than 58 fully developed flowers. The variety is much more than usually sweet scented, of good colour, and of fair form and size. The plants are grown in a mixed stove, where they get more

light and less shade than is usually allowed Phalanopsis. They have thick, leathery leaves, considerably longer and not so round and broad as is generally the case with home-grown plants; in fact, they strongly resemble the leaves of the strongest imported plants.—NORMAN C. COOKSON, *Oakwood, Wylam-on-Tyne.*

NOTES OF THE WEEK.

PRIZES FOR ROSES.—We observe that a prize of £20 is to be awarded for twelve varieties of Roses in pots at the Royal Western Horticultural Society's show, to be held in the Guildhall, Plymouth, on the 9th of May next.

SPECIAL PRIZES.—At the next meeting of the Royal Horticultural Society (Tuesday, 28th inst.) the special prizes offered for *Amaryllides*, *Hyacinths*, and *Tulips* will be competed for, and, having regard to the favourable weather that has hitherto prevailed, a good exhibition may be expected.

NICOTIANA AFFINIS.—This striking plant comes to us again from Mr. W. M. Crowe, Upton, Essex. This plant is tinged with rose, and is not the same as the variety sent by Messrs. Sutton, which is a whiter form. It is interesting and striking, but we doubt if any of the species will ever become good garden plants.

A TASTE OF WINTER.—A biting north wind, bringing with it sharp snowstorms, sprang up yesterday morning and continued through the night with 6° of frost. Fortunately, the storms coming from the north left the open blossoms on south walls dry, and so far safe; but sudden checks to the sap often do much injury when blossoms are not actually killed by frost. The Malvern Hills are now covered with snow.—W. C., *Eastnor.*

THE ASPARAGUS PRIZES will this year be competed for at the great show at the Royal Horticultural Society on May 23. This is the second year of competition, and we believe an interesting exhibition will be in the result. The date is a little more favourable than it was last year, so far as may now be said.

PRUNUS TRILOBA.—This Chinese shrub, against one of the walls in Kew Gardens, is now one of the prettiest sights imaginable, every little twig being wreathed with delicate pink blossoms, which are semi-double. Why is it that such a beautiful shrub, perfectly hardy and easy to cultivate, is so seldom found in private gardens? It surely cannot be well known.

AZALEA MOLLISS.—Some glorious bushes of this lovely shrub, covered by a profusion of blossoms, are now among the most attractive plants in the conservatory (No. 4) at Kew just now. The colour, a vivid orange-scarlet, is one that is prominent above all others, yet harmonises with every other hue. More attention should certainly be directed to this beautiful shrub for early forcing purposes.

BEGONIA SEMPERFLORENS ROSEA.—This new variety seems to be answering the description given it in a very creditable manner. Some few weeks ago we made a note of it. As we saw it then, the flowers were prettily margined with rose, but the plants now in the Victoria Nursery, Upper Holloway, are of a uniform pleasing rose-pink, a colour which, combined with the well-known excellent qualities of the original, must undoubtedly render this Begonia popular.

BEAUTIFUL GREENHOUSE CLIMBERS.—Two of the most conspicuous plants that now adorn the roof of the temperate house at Kew with their blossoms are *Clematis indivisa* and *Akebia quinata*, both of which are almost intertwined, and festoon the lower part of the roof in a beautiful manner, the deep claret hue of the *Akebia*

forming a fine contrast to the whiteness of the wreaths of the *Clematis*. Both flower profusely, and it would be a difficult matter to name two more desirable greenhouse climbers for early spring decoration.

SNOWFLAKE BEGONIA.—This is a seedling from semperflorens, raised three years since, and perfectly constant from seed. The plants from which the flowers we send were taken were raised from seed sown in January, 1881, and have been flowering continuously since September last. This variety is not only about three times as large as semperflorens, but also much more free flowering.—SUTTON & SONS. [A very pretty plant indeed, with fresh foliage of a delicious green and many charming white flowers.—ED.]

A BEAUTIFUL NEW BALSAM.—In the house No. 8 at Kew there is a charming new species of *Impatiens* received from Zanzibar. It is allied to *I. Walkeri*, and, like that species, is very showy. It forms a compact, much-branched plant of dwarf growth, each shoot being terminated by a leafy cluster of blossoms, which are about 1 in. across, similar in form to those of the typical *I. balsamifera* and of a brilliant lake-vermilion hue, the crystalline surface of the petals shining in the sun like satin. It possesses all the characters of a really valuable garden plant, being free in growth, a wonderfully free bloomer, and apparently as easy to grow as the common Balsam.

PINGUICULA CAUDATA.—This charming new Butterwort is now finely in flower in the Pineapple Nursery, Maida Vale, where in one of the cool Orchid houses its bright, singularly shaped blossoms compare favourably with the loveliness of *Masdevallia Lindenii* and *Harryana*, the colours of which it resembles in a striking degree. The freedom with which it flowers and the length of time it continues in bloom, as well as its easy culture, combine to render it a most desirable plant. It may be grown successfully in a very cool house; indeed it seems to be nearly hardy. We believe the entire stock of this plant has passed into the hands of Messrs. E. G. Henderson, by whom it will be shortly distributed.

STENOMESSON HARTWEGII.—This is one of those rare and beautiful tropical bulbous plants for which the Messrs. Henderson's nursery has become famous. It is now beautifully in bloom in their nursery at Pine-apple Place, Maida Vale, in one of the stoves. It is larger altogether than *S. suspensum*, the flower-stem being taller and stouter, rising some 2 ft. high, and terminated by an umbel of many drooping flowers about 1½ in. in length, and of a brilliant scarlet-vermilion hue, which colour, with the bluish glaucous tint of the green of the stem and foliage, combines to render the plant exceedingly attractive. It is a native of the mountainous districts about Quito, whence it was introduced some forty years ago, but is extremely rare in gardens at the present time.

GARDENIA STANLEYANA.—This remarkable plant would scarcely be recognised as a *Gardenia* at all by people acquainted only with *G. florida*, being in every way so distinct. It forms a handsome, spreading bush, much branched and symmetrical in growth, and bears very large funnel-shaped blossoms, the exterior of which is deep blackish purple, and the interior creamy white. When the plant has attained several years' growth it flowers profusely, and when seen in perfection is really a strikingly handsome object. We had no idea that it flowered freely in a very small state until we were convinced of the fact by seeing in Mr. B. S. Williams' nursery, Upper Holloway, numbers of very small plants all copiously furnished with flower-buds. It succeeds best in a warm, moist stove.

FINELY FLOWERED STEPHANOTIS.—At Brentry House, near Bristol, I noticed the other day a beautiful specimen of *Stephanotis floribunda*. Though only four years have elapsed since it was put in as a cutting, it now covers the roof of a stove, 14 ft. in width and 22 ft. in length, and also the end wall. It bears quite a thousand trusses of flowers though not yet open, and in some of the trusses I counted eleven flowers. This plant has been grown on rapidly, no rest whatever having been afforded it, and certainly the results obtained seem to justify the treatment it has received. Blossoms have been picked from the same plant almost daily during eight out of the past twelve months, since which time it has made growths 20 ft. in length, and at the base of almost every leaf is a flower truss, and in several cases two.—A. W. H.

NEW VARIETIES OF POINSETTIA.—With the exception of *plenissima* and *alba*, there has been no break hitherto from the normal type of *Poinsettia pulcherrima*. We are now pleased to learn, however, that some remarkably distinct varieties as regards colour are being distributed by Mr. B. S. Williams, of Upper Holloway. These are hybrids obtained by crossing the white-bracted form with the scarlet. The results are not all uniformly good, but there are at least three distinct sorts as regards the colour of the bracts. The names of these are *P. ignescens*, which bears large crests of a rich lake-vermilion; *P. mirabilis*, with bracts of a soft rose-vermilion, and *P. variabilis*, so named on account of the green leaves being intermixed in some cases with the vivid scarlet bracts. In others the bracts are beautifully mottled with green. All these varieties are of strong robust growth, and good additions to this valuable class of autumn and winter decorative plants.

HARDY FLOWERS are now in great beauty in the Trinity College Botanic Gardens, Dublin, the hardy Heaths being especially fine and bright in colour. Mr. Burbridge states that they are among the most lasting and easily managed flowers which he has. Large patches of garden Anemones sown last autumn are masses of bright colours, and the collection of dwarf *Scillas* very showy and interesting. All interested in Narcissi should now pay a visit to these gardens; the collection is complete, and no one is better qualified to explain their distinctions than Mr. Burbridge. *Hellebores* also are very fine. The system of planting flowering plants and bulbs in the Grass is here artistically carried out; often we get a peep of some bright colour at the end of a glade, leading one to expect a great display there; but on arriving at the spot we find nothing more than two or three *Daffodils* and a patch of *Anemone penningtonii*, or half-a-dozen blossoms of *A. fulgens*, and these probably not 3 yards off the cleverly screened boundary railings—a pleasant delusion.—JAMES O'BRIEN.

IRIS CAUCASICA and **I. TIBEROSA.**—It was singular that in the same week you received the Snake's-head *Iris* and *Iris caucasica* from another source also. The latter, which is both curious and pretty, is flowering freely—flowers in succession from the base of the leaves, which spread laterally up the stem, in all about six blooms. It was in my open border not only during the past winter, but during the severe cold of 1881. The Snake's-head *Iris* I have had for more than forty years, but I never knew it to be in very general cultivation; it is therefore difficult to account for its occasional occurrence in hedge-rows. In this neighbourhood I know one spot where it runs amongst the hedge roots for fully ten yards. It also grows near Mary Church. I have not seen it in Cornwall, but I think in Sowerby's new edition it is mentioned as being found there.—T. H. A. H.

ROSE GARDEN.

ROSES IN WOODS.

HERE wild Roses and Sweet Briers have led the way, and will always bear sway. That, however, is no reason why the more free-growing garden Roses should not bear them company. They may bring more brilliant colours, sweeter perfumes, though hardly higher beauty, for the Dog Rose and the Sweet Brier are at home in woods. Nothing can well exceed the richness of their flowing branches laden with simple flowers or brilliant hips, or their thick tangled skeins and masses of flowering verdure or brilliant colours. They owe very much of their effect to their mere luxuriance. Being suckers or seedlings, they suffer

disadvantage. It is easy indeed to cut away the roots of the trees, and thus to clear a space for the roots of the Roses. But hardly have the roots been removed than they are back again, and in greater force than before. Few things more astonish the uninitiated in such matters than the rapidity with which roots are reformed in woods, and they increase much faster when any manure or fresh compost is added to the Roses.

Budding wood Briers.—There are several methods, of shunting, as it were, or baulking this difficulty of impoverishment by foreign roots. One of the simplest and most effective is to look out for Briers in the wood, and work them where they stand. Not, however, that they should be beheaded or budded in the usual

Planting in barrels.—When it is needful to plant Roses in woods, it is most desirable to adopt some means of keeping out the roots of trees. One of the simplest and cheapest modes is to sink old oil, tar, or other barrels, first burning the inside clean; the bottoms may also be knocked out, for it is found that but few roots of trees come up from the bottom, nearly the whole of them running in from the sides. These may be filled with the richest compost, with the assurance that the Roses will have all the benefit of it, and Roses do remarkably well in such barrels. By the time the wood has rotted the roots are sufficiently established to take care of themselves. Well-charred barrels will last a dozen years or more. Some use bricks and mortar, but these are expensive and of little use, unless the bricks are laid in cement, for the roots of trees often penetrate the mortar, and seem to run with more speed, owing to the resistance it offers to them. All trees and shrubs are not alike bad poachers on the root runs of Roses and other cultivated plants. Elms, Beeches, and Ashes are, perhaps, the worst among deciduous, and Spruces among coniferous trees. But Roses invariably do best if shut in from the ravages of other roots by some such simple contrivances as here suggested. Only strong plants and vigorous growers should be used for these purposes. Plant early in rich compost, and cut back to a few vigorous eyes, rather than leave a large portion of the top. One shoot 6 ft. or 10 ft. long will make a better and more effective Rose, in a wood, than a dozen growths each 1 ft. long.

Varieties.—Of these only strong growers should be chosen. It may surprise some, however, to be told that Gloire de Dijon is one of the very finest Roses for growing in woods. The pink Gloire de Dijon or Gloire de Bordeaux is also a vigorous growing free flowering Rose, well adapted for woods. Climbing Devoniensis, Lamarque, and Triomphe des Rennes also grow and flower freely in mild situations. Among hybrid Chinas the old Blari No. 2, Chénédolé, Coupe d'Hébe, Kulgens, Charles Lawson, Paul Ricaut, and VIVID are among the most free and showy for woods. The copper-coloured and yellow Austrian Briers also do well if allowed to run free and wild up or against trees.

Among Noisette Roses, Aimée Vibert, Coquette des Blanchés, Jaune Desprez are among the more useful; such Boursaults as elegans, gracilis, and Amadis are also free and showy. Among evergreen Roses such showy varieties as Felicité Perpetue, Princess Louise, Rampante, Princess Marie, and Reine des Françaises are hosts in themselves; as are likewise such gross growing profuse blooming Ayrshire Roses as Dundee Rambler, Queen of the Belgians, Splendens, and Ruga. The Chess-hunt Hybrid, though classed among Teas, is a wonderful Rose to grow and climb, and its brilliant blooms would render it most attractive in woods.

Some of the stronger growing Hybrid Perpetuals, such as Baronne Prévost, General Jacqueminot, Baron de Bonstetten, Charles Lefebvre, Climbing Victor Verdier, Madame Clémence Joigneux, Paul Neron, Maréchal Vaillant, Souvenir de la Reine d'Angleterre, Madame Hippolyte Jamain, Emily Laxton, Elie Morel, climbing Victor Verdier, &c., also do well in woods and shrubberies. Even the Duke of Edinburgh, in favourable positions, makes 3 ft. or more of growth in a season, and would doubtless speedily climb to the top of a dwarf tree and drape it with rare brilliance and beauty.

D. T. FISCH.

A NEW ROSE.

(ROSA PISSARTI.)

THIS beautiful addition to the already long list of cultivated species of Roses has lately been described in the *Revue Horticole* by M. Carrière. It has slender and very spiny branches, which have a tendency to droop. The flowers, which are pure white, are sweetly scented, and produced in profusion in the manner represented in the accompanying engraving; so plentifully, in-



Rosa Pissarti.

none of the checks incident to cultivated varieties. They start with all the energy that a vigorous tap root and all other roots intact can give them, and the vigour of the start runs through the major portion of their life, and his vigorous growth is the main point with Roses in woods. Growing amongst trees or other shrubs, Briers and Roses will be nowhere unless they are strong. Several things tend to weaken Roses in woods, such as transplantation and the invitation that the mere disturbance of the ground gives to all other roots to poach on the root-runs of the Roses. The first is unavoidable, for however carefully Roses may be transplanted, the tap and not a few of the more vigorous other roots are necessarily lost in the process. Roses at best have but few roots contrasted with other trees and shrubs, and when these are further reduced by transplantation, of course the Roses are placed at a further

way; on the contrary, most of the main and the stronger branches of the Briers should be left, and a dozen or score or more of them be budded with one or more free growing Roses. This will economise all the root force of the Brier already in existence, and produce a fine bush much sooner than by any other method. True, there may be a difficulty with suckers and with wild branches. In many cases a few of these would add to the effect of Roses in woods, and, besides, it would be easy to look over the Roses occasionally, and keep down Briers, or wholly remove them, in cases where no wild Roses exist, the seeds might be sown, or wild Roses might be planted, or strong cuttings inserted. By either means vigorous stocks would be prepared. The roots of wild Briers can hold their own much better against those of trees than the majority of cultivated Roses.

deed, are they borne, that they are said to give the bushes, when in full flower, the appearance of masses of snow. Like the beautiful *R. Brunoniana*, *rugosa*, and a few others, it will make a capital object for planting singly on a lawn, a position in which its beauty will be shown off to the best advantage. It is said to flower not only abundantly, but continuously for several months. This new species is named in compliment to M. Pissart, gardener to the Shah of Persia at Teheran, to the gardens of which it has been introduced from Guiland, a locality near to the Caspian Sea. It is said to be extremely hardy; therefore its introduction to our gardens is much to be desired.

GARDEN DESTROYERS.

REPORT OF OBSERVATIONS ON INJURIOUS INSECTS DURING THE YEAR 1881.*

MESSRS. W. SWAN, SONNENSCHIM & Co. have just published Miss Ormerod's annual report on injurious insects for 1881. It, like its predecessors, gives the returns from various observers in different parts of this country on the insects which have attacked their crops, and in most cases of the means which they used to destroy them. This year the report is much larger than the previous ones, and the matter contained in it is more clearly and better put together than heretofore. The plural of chrysalis, however, is throughout spelt chrysalids, instead of chrysalides, the more usual and correct way of spelling the word. The returns are very interesting, but they are mostly from agriculturists, and the insects alluded to in them are chiefly those which attack farm crops; many, however, are very injurious in gardens, and among them the Gooseberry sawfly, whose grubs were again the cause of much damage in many places. One observer in Norfolk mentions that chaffinches were seen busily feeding their young with these grubs. Shaking the bushes over a piece of canvas is much recommended, and removing 2 in. in depth of the soil from beneath the bushes is also highly spoken of.

The Celery fly grubs, and the daddy-long-legs grubs, sometimes called leather jackets, do not appear to have been so common as usual last season, but the maggots of the Onion fly were very destructive in many places. Watering with paraffin oil and water (one wineglass of oil to five gallons of water), kept well mixed, was tried with very good effect. Earthing up the Onions before they are attacked to about 1 in. above the bulbs prevents the flies from laying their eggs on them, and is found a very successful plan. The grubs of the Cabbage and root-eating flies were very mischievous, and so was the Pea and Bean weevil (*Sitona lineatus*).

The most interesting part of this report is a very elaborately drawn up account of the great injuries caused to the Turnip and Swede crops by the Turnip fly (or, as the well-known insect should more properly be called, the Turnip beetle or flea)—*Phyllotreta nemorum*—or some nearly allied species, which was unusually abundant last year, and the cause of heavy losses to farmers in various parts of England, Scotland, and Ireland. Wales seems to have been totally free from this pest, and in Cheshire and Staffordshire it was less troublesome than usual. West Lancashire, curiously enough, is said to be never troubled with it. The returns from Ireland were very few, but they mention this insect as being very injurious. In many places the crop failed after three sowings, causing an estimated

loss of from £2 10s. to £5 per acre. From the agricultural returns it appears that an area of 1,149,768 acres in England was under Turnips and Swedes in 1881, and Miss Ormerod considers that it would be a low estimate, and well within the mark, if it be assumed that over half this average, or 574,884 acres, these crops had to be sown over. Accepting this as a fair estimate, and the cost of the seed at 9d. per lb., and that 3 lbs. are required per acre, it will be found that the cost of the seed alone amounts to £64,674 9s.; and if the cost of resowing the same acreage be taken at the low estimate of 15s. per acre, it will amount to £431,163. The acreage in eleven counties in Scotland under Turnips and Swedes was 194,105 acres, which would cost to resow, according to the above calculations for seed, £19,918 7s., and for labour, &c., £72,759, showing a total amount of loss in England and Scotland caused by these insects of nearly £600,000, or an average of about £1 6s. on the gross acreage under Turnips (Swedes), which, as Miss Ormerod justly remarks, "has made the visitation of the Turnip fly of 1881 nothing less than a national calamity."

After giving detailed accounts from various districts, the report deals with the various means for averting or combating the attacks of this insect under the head of Charlock, cultivation, seed, sowing early, steps for seed, importance of a good start to the plants, dressings, and various means for disturbing and catching the Turnip fly. It appears that a bad attack of this fly often follows a year when Charlock has been particularly abundant, and that sowing Turnip seed on land which had much Charlock growing on it the previous year should be avoided. This is easily understood, as the beetles are very partial to this weed, and pass the winter under stons, clods, and similar shelter in a torpid condition, so they are all quite ready to attack the Turnips as soon as they come up. Some of the contributors have found this insect very useful in destroying the Charlock. One says, "My farm was overrun with Charlock, the legacies of the last wet seasons; it came up in the Barley so thick, that I expected the farm to look like a Colza field, but, strange to say, the fleas attacked these gay plants of Charlock, and so completely destroyed it (*sic*), that there is now scarcely any Charlock on the farm. A more complete clearance of a pest than they made I never saw. Having done their work, they went away, and my Swedes sown late escaped their visitation." Most of the contributors agree in recommending thick sowing as most beneficial. Some recommend mixing Mustard seed with the Turnip seed. The Mustard is more attractive to the fly than the Turnips, so that by the time the insects have devoured the Mustard, the Turnips have got a good start. One injurious insect which was in unusual abundance last year was the Oak leaf-rotter moth (*Tortrix viridana*), which in some places entirely stripped the Oaks of their foliage. This is the first time this insect has been mentioned in these reports. Then beetles are also reported on for the first time. The Turnip flower beetle (*Meligethes ceneus*), a very small, flat, bronzy green beetle, which, as its English name implies, feeds on the flowers of Turnips and similar plants and are the cause at times of considerable loss to those who are trying to obtain seed; the Beech weevil (*Orchestes fagi*), which feeds on the leaves of Beech trees, piercing their leaves with a number of small holes, which apparently prevents the trees from making their proper annual growth. The grubs of another member of the same genus attack the leaves of Elms, and injure them by mining between the skins of the leaves, and feeding on their inner substance. The grubs of a sawfly which attack the Grass in pasture fields are also noticed for

the first time. The thanks of all interested in agriculture are due to Miss Ormerod for the trouble she takes in compiling these very valuable reports.

A USEFUL INSECTICIDE.

LIKE most people, I have unpleasant recollections of mealy bug and brown and white scale. The former, by unremitting attention, we have entirely extirpated, and the latter are reduced to a minimum. My "insecticide" has been for more than ten years past the "Chelsea Blight Composition," and it is one of the best still; being a liquid, it is easily measured off for the requisite amount of water to be added thereto. One therefore knows exactly what strength he is using. Upon taking charge of the gardens here I found mealy bug and scale throughout all the houses, both very plentiful. I therefore resolved to wage war unceasingly on these pests. For the purpose of economising the insecticide, I had a zinc trough made about 6 ft. long, 4 ft. broad, and 4 in. deep, with a hole in the bottom, at one corner to drain off the liquid into a pail. Over this the plants were laid and well syringed backwards and forwards, using at first the strength recommended on the printed instructions, *viz.*, 1 pint to the gallon of water. This was generally found sufficient for brown scale by repeating the dose after a little while. For white scale we used $\frac{1}{2}$ pint to the gallon of water, a strength which was found to be too much for them. The plants treated with the stronger doses were in all cases syringed with clean water in about twenty minutes afterwards. Those on which the printed instruction as to strength was followed out were not so treated. The extra strength was used in all cases for bug, which I found could not stand repeated doses, each repetition thinning them considerably.

Plants operated on.—The following plants were treated in this manner: Crotons of various sorts, Gardenias, *Ixoras*, and *Stephanotis*. *Eucharis* was sponged again and again till no bugs were left; for this we used the stronger solution. Palms of many kinds were sponged with liquid of the ordinary strength, the stronger only being used in bad cases, and that chiefly around the stems. Climbers that were infested were in some cases cut down when it was found impossible to attack the enemy otherwise; in other cases they were laid over the trough, as already stated. For about two years we had almost unceasing trouble with occasional stragglers; now we are deriving benefit from the extra attention then given.

Mealy bug on Vines.—Where bug had attacked the Vines we removed the loose bark in winter after the Vines were pruned, and then dressed around the old spurs with the composition as poured from the bottle, carefully avoiding the most promising buds. During the following summer if stray bugs were caught, the old wood and spurs were again dressed with a little of the composition, and in the autumn scarcely a bug was to be found. In the case of these Vines, however, I had no occasion to use any further dressing; every one of them, root and branch, had to be destroyed through a bad attack of *Phylloxera*.

Ferns should not on any account be syringed, immersed, or sponged with this insecticide. I once experimented on a specimen plant with one quarter strength only, but ill effects soon afterwards made their appearance. Severe thinning of the fronds is the best remedy, and a weak solution of soft soap and water, where such is possible, to be applied with a sponge. Perseverance will in most cases attain the desired end. I do not find red spider troublesome where the syringe can be plied freely; my remedy for this is a bag of soot (about half-a-gallon, more or less) placed in any ordinary sized tank from which the water is taken for syringing and watering. Besides being a preventive of spider, it has also manual properties. Even the tenderest Fern frond is not injured by it. Like "*Sylvestris*" (p. 117), I used to employ sul-

* Report of Observations on Injurious Insects during the year 1881, and special report on Turnip Fly, by Eleanor A. Ormerod. Messrs. W. Swan, Sonnenschim & Co. 1882. Price 1s. 6d.

phur and Tobacco water myself in the good old days, but I find that in many cases I can now dispense with these remedies. Fumigation is the best antidote for thrips and aphides where it can be applied. When any trace of either of these insects is seen, commence proceedings against them before a colony is formed.

Referring to the "Chelsea Blight Composition," as a caution I ought to say that plants with downy foliage are apt to be injured by it if the printed directions are not carried out strictly. I have tried but few other insecticides, preferring to stick to the one that has served me well, or, as the adage runs, "speak well of the bridge that carries one over." When making fresh additions to our collection of plants, we always make it a practice to keep all plants in strict quarantine till they have a clean bill of freedom from insects, bug in particular.

The hot water cure I tried in the case of mealy bug on Amaryllides that were badly infested. Removing all the soil from the roots and most of the loose scales around the bulbs, I applied a syringe about them vigorously, using clear water as hot as I could conveniently use the syringe. This had the desired effect, for they soon started into fresh growth and no more bug was seen on them.

JAMES HUDSON.

Gunnersbury House, Acton.

FRUIT GARDEN.

FIGS ON WALLS AND FOR FORCING.

ALARMED by the wholesale destruction of Figs during the winter of 1880-81, it is by no means improbable that many of the surviving trees will be injured this season by too much protection, the more so, as some which were enfeebled, but not quite killed, will be forced into an early growth too tender to resist the effects of late spring frosts. Where this is the case, a coping board should be placed above them for the two fold purpose of protecting the shoots from wet, and the prolongation of rest by keeping the roots dry. When this has been done, mild as the season is, we must not forget that we are not yet out of the wood, and so fall into mischief by the sudden removal of the straw or Fern which has been used for covering; but take it off little and often until just sufficient is left to protect from sun and morning frosts, while it admits of a free circulation of air through the branches. The pruning and training of wall Figs is always the last link which connects the winter routine with spring operations, and it generally happens that the month of April is upon us before the work is finished, but when the trees are thoroughly hardened and danger of spring frosts has passed away, the borders should be lightly pointed up with a fork, well watered, mulched with rotten manure, and watered again to insure rapid development of foliage for the protection of the embryo Figs, which have passed through a mild winter without injury. It rarely happens in the mildest parts of this country, where the Fig is most at home, that young fruits which attain the size of Peas in the autumn pass through the winter and ripen off the following summer, hence the advisability of rubbing them off and depending upon the embryo Figs which are just formed at the points of the shoots when the leaves fall, as they are less susceptible to injury, and the season being well advanced by the time they attain the flowering stage, they generally set well and ripen off in August and September. To secure these conditions the chief aim should be the production of an even spread of short-jointed, well-ripened growths by keeping them thin and closely nailed to the walls. In sheltered corners in warm gardens growths of this kind may be obtained without disturbing the roots, but in low, damp situations robust growth must be checked by annual root pruning, and by placing an abundance of drainage, consisting of broken bricks and old lime rubble, beneath the borders. Autumn is the best time to perform this operation, as the roots then have time

to recover before growth again commences, and the borders, which need not be very wide, should be well elevated, so as to secure warmth and dryness when feeding is discontinued in the autumn. Although the Fig will accommodate itself to almost any kind of garden soil, the compost which suits it best is strong calcareous loam, a liberal supply of old mortar, burnt earth or charcoal, thoroughly mixed and made very firm about the roots. If very dry when used, and the leaves have not fallen from the trees, a little water may be given to settle it about the roots, and when all is finished a good mulching will keep them safe for the winter. Although an immense number of varieties of Figs may now be found in many collections, all are not alike suited to outdoor culture. The kinds usually met with are Brown Turkey, Brunswick, Black and Brown Ischia, and White Marseilles. Negro Largo and a variety resembling Brunswick, called Hardy Prolific, passed through the winter 1880-81 with a little Fern placed around their young shoots, and doubtless there are many other kinds equally hardy, provided they are prevented from becoming gross, and the cultivator elevates his borders and raises the root temperature by the use of brick rubble, upon the

late use; but as some of these do not fruit or force well when young, short-jointed kinds like Osborn's Prolific, which shows as many Figs as leaves, forces well, and ripens off most delicious fruit, should be selected. To those unacquainted with this addition to our now valuable collection of pot Figs the annexed illustration will convey an idea of its compact habit, abundant fruitfulness, and adaptability for culture in small pots where space is limited. As a successful grower of Figs under glass, I have always looked upon Brown Turkey as the gardener's sheet anchor, and my two years' experience of Osborn's Prolific justifies me in recommending it as a worthy companion to that trusty friend where two or more are grown. There are, of course, many other kinds well adapted for forcing in pots, or planting out in borders; and as many enthusiastic amateurs and young beginners rejoice in a plurality of sorts, I may recommend the following: Black, Brown, and White Ischia, Doctor Hogg, Negro Largo, a most excellent black Fig, and White Marseilles. Where pot culture is contemplated now is a good time to commence, and as plants can be manufactured from eyes, cuttings, or suckers in a very short time, suitable kinds



Fig, Osborn's Prolific.

lines laid down by the late Mr. Gibson, when he compelled many of our stove plants to flourish in the open air in Battersea Park. If I were confined to one variety I should choose brown Turkey, as it is a moderate grower, hardy, prolific, and the best of all for flavour.

Within the memory of many middle-aged fruit growers the culture of this delicious fruit was confined to a limited number of gardens, and none but the wealthy thought of giving it a place under glass, but, thanks to such enterprising men as Messrs. Rivers, Veitch, and Osborn, we now have a number of kinds of the highest quality peculiarly adapted for pot culture under glass, and so well is the management of this heat-loving tree understood by men who have to provide large supplies for the London market demand that we now have English fruit from the early part of April until the end of the "Sussex season." But the amateur whose space or heating power may be extremely small must not suppose that all kinds are alike adapted for his convenience. By all means plant the Ischias of different sorts, Castle Kennedy, Brunswick, and others against warm, lofty walls, or in large houses for mid-season and

should be put in without delay, or, time being an object, established fruiting trees may be obtained from any of the leading nurseries.

Eastnor Castle.

W. COLEMAN.

REGRAFTING APPLE TREES.

The most favourable season for this operation is now at hand, therefore a few remarks as to the benefits arising therefrom may not be unacceptable. One may now see in all directions around Maidstone large trees with their branches shortened about half their length, or to where they divide into shoots 2 in. or 3 in. in diameter. This shortening is preparatory to regrafting in the end of March or early in April, and is the invariable cure now prescribed for unfruitful trees, or for exchanging unprofitable for profitable varieties; even trees on which the young wood dies back or cankers may be converted into sound ones if the main shoots are healthy by regrafting with a variety that succeeds in the locality. To this operation alone I attribute a good deal of the success of Kentish Apple culture, for growers heretofore have no idea of letting a tree stand year after

year in an unfruitful condition. If other means fail to induce fruitfulness, or if the fruit produced does not realise good prices, the branches are sawn off, as I have just stated, before the sap is in motion, a little above where it is intended to re-graft. The scions are procured during the winter months, and laid in trenches under the shade of a wall or hedge. Shoots of medium strength, straight, and clean of the preceding year's growth are the only ones selected, and in making the scions only the well ripened portions of such shoots are used; the short or immature tips are always rejected, unripe wood being the forerunner of many evils. The only mode of grafting employed is that called crown or rind grafting. It is easily performed, and does not leave any wounds or scars on the shoots operated on, as with medium-sized shoots, such as those mentioned, a thorough union of scion and stock takes place. Having everything in readiness, the operator takes a sharp, fine-toothed saw and cuts off a piece of the stock or branch, selecting a place free from knots of any kind; he then, with a sharp, strong pruning knife, cuts the top of the stock quite smooth, and makes incisions through the bark where it is intended to insert the grafts. A hard piece of wood or bone is then carefully inserted between the outer and inner bark, and the scion, made with a long slanting cut, is inserted immediately, about three buds being left beyond the stock. It must be at once tied securely in its place with soft bast, and covered with clay beaten up to the consistency of putty and mixed with fresh cow manure. Some wood ashes are dusted over the clay to facilitate the operation of smoothing it into an oval form, and a few strands of bast may be worked around it as a safeguard against cracking. As much depends on keeping this covering in a condition to exclude the drying effects of the atmosphere, the grafts should be looked over every few days, and any cracks in the clay made good by working in a little fresh clay in nearly a liquid state. If all has gone on well the grafts will begin to grow freely in June, and by the end of July the young shoots will need supports to prevent their being injured through rough gales. The ordinary method employed here is to fasten stout stakes securely to the stock, so that they project 2 ft. beyond the graft; soft bast tied to these is looped round the young shoots, so that they cannot sway about and get broken. The clay may also now be removed, and the ties that bound the scion and stock together may be loosened by degrees. The small spray-like shoots left on the stock to provide leaf growth, and thereby root action, may likewise be reduced by degrees, and at the winter pruning cleared away altogether.

Hereabouts we have professional grafters, but where such experienced hands are not procurable, owners of Apple trees need not be deterred from re-grafting, for with ordinary care there is but little doubt of success, even in the case of the uninitiated. I would, however, especially warn them against performing the operation too early; the sap should be in full flow, and the buds left on the stock just ready to burst into leaf before a start is made. The bark will then part freely without danger of tearing, and with good scions one can scarcely fail. Do not put more than one variety on a tree, for different kinds seldom get on well together, and it is more profitable to grow a few good sorts than a collection, and only increase varieties that are locally known to do well. In this neighbourhood market growers get a few young trees of any new sorts that are sent out, and test them in their gardens. If they do well, the top shoots are used for grafts. Varieties must be known to be of first class quality, good in colour, and above all prolific under open air orchard culture before they can be grown on anything like a large scale.

Linton.

J. GROOM.

Top dressing fruit trees.—*T.*—It is probable that the soil is poor; therefore a heavy top dressing would do good. Put on at least 4 in. in thickness of the best rotten manure you can get; then give a good soaking of liquid manure, and await the result.—J. G., Linton

PRODUCTION OF ROOTS.

A GOOD way of proving this is as follows: Get a flower-pot of fair size, place a piece of stiff paper in the centre of it to partition it into two halves, and fill one division with clean washed sand and the other with some light rich compost, consisting of loam and Mushroom manure, or leaf-mould, and Standen's manure; then pull the paper out, and the two composts will remain in their respective positions. Next, get a young *Camellia* plant or some quick and gross-rooting subject, shake all the soil from it, and insert the root straight down in the pot between the sand and the soil, and place the plant in a suitable temperature, and in course of time make a note of the condition of the roots. This must not be delayed, however, till the pot is crammed with roots, but observed when the roots are just fairly active and the plant is growing freely. A Vine or any other plant will do as well, but a longer time would be required to carry out the experiment. I have tried experiments of this kind, with the result that the rich compost always held the most roots. Let all the conditions be as equal as possible. The way in which a Vine or other root acts with a decomposing piece of bone is familiar to most cultivators, and has often been cited. A single fibreless root will turn aside and clasp the bone in innumerable rootlets, because it finds rich food there. I remember once being sent to chop up an old heap of loam that had been stacked near some Ash trees, and as soon as the spade was put in it was found to be so completely permeated in every direction by multitudes of small roots that it could be cut off in square blocks, consisting as it did as much of tree roots as soil. I never knew sand to be eaten up in that way. Such instances as those given by "Thrumpton" are useless. His first border appears to have been simply poisoned with manure. What I call a rich compost is one containing all the elements of plant food in due proportion in a soil finely divided. In making the experiment which I have just suggested, the compost should be sifted as fine as the sand and well mixed. If poor soil produces the most roots, river sand from whinstone rock, washed on a piece of muslin cloth till all the earthy matter is got out of it, should represent a poor soil, and will afford a ready means of testing the fertility of roots if poverty will do it. Let someone make the experiment, and send the pot to THE GARDEN office for investigation. It is high time we were altering our practice if the poor soil theory of "Thrumpton" and others be correct.

J. S. W.

Pruning Peach trees.—In early Peach houses the crop will now be fast swelling, and I find that the best time to prune the trees is when one can regulate both the crop of fruit and young wood at the same time. It is, however, always advisable to be on the safe side and leave more than enough of bearing wood at the winter pruning. When the crop has fairly set and has started to swell, so that one can select the best shaped and placed fruits, is the best time for cutting out all wood not absolutely required. The leading shoots and next season's bearing wood only will require to be left unchecked during the summer; all the rest carrying the crop should be pinched back to about half-a-dozen leaves, which must be left to keep up the circulation of sap. If the tree is fairly well filled with bearing wood, only one shoot from the base of each fruitful shoot should be left to be laid in. One of the greatest evils in Peach culture is leaving too much wood; the shoots left for bearing fruit next year should be allowed to grow without stopping during the season, and they should not be too tightly fastened to the trellis. Young trees will of course require more leading shoots left than old ones, but it is a positive waste of force to grow shoots during the summer to be cut out at the winter pruning. I find that if well thinned after the crop is set the winter pruning may be almost dispensed with, and I find that stone fruits, like the Peach, Cherry, and Plum, are much more likely to be injured by the knife in winter than when in active growth, for when in full leaf the cuts made heal quickly.—J. GROOM.

GARDEN FLORA.

PLATE CCCXXIX.—THE GUERNSEY LILIES (NERINE).*

THE great beauty which these plants possess, and the admiration they command wherever they are well bloomed, make one wonder that they are not more generally met with than they are. All they require is the protection of a cold frame or that of a cold, dry greenhouse, such as that in which New Holland plants are grown. Indeed, I have always been of opinion that they would even do well out-of-doors if planted in sheltered places in our mildest counties, or in some situations in Ireland, and left undisturbed. I cannot see why they should not succeed planted deeply wherever *Amaryllis* *Balladonna* thrives. Too often these beautiful bulbs are ruined with kindness; stove heat or the atmosphere of a close, moist house causes them to dwindle away. The chief points to be observed in their management is to give them a long and decided period of rest by drying them off, and keeping them at all times in a light, sunny, airy, situation. From the time the foliage withers (late in spring) until the flower-spikes appear (in August, September, and October), the plants should be kept on a sunny shelf in a dry greenhouse, or in a dry, cold frame with the lights on and tilted to admit air. Throughout the time just alluded to not a drop of water should be given them until the spikes begin to appear. During the flowering season and onward through the winter and spring until the leaves begin to wither again they should be liberally watered. Repotting should be done as seldom as possible, as it generally throws them a year out of bloom. The proper soil for them is turfy yellow loam. The beauty of these Guernsey Lilies, their easy culture, and the long duration of their flowers should make them general favourites with amateurs and window gardeners. The annexed plate represents a few of the more distinct kinds, but there are about a dozen and a half of varieties in cultivation equally good.

JAMES O'BRIEN.

THE PALLAVICINI GARDEN.

A PLEASANT hour's drive to the west of Genoa brings one to the little town of Pegli, which is studded with villas belonging to merchant princes of Genoa, and attached to one in particular are lovely grounds consisting of about four acres. This is the Pallavicini Garden, to which visitors have free access. It contains nearly every variety of Palm, from the Sago to the Date. Hundreds of *Camellias* of every shade occupy the slopes, and here, too, may now be seen the rich blossoms of the *Rhododendron* and *Azalea* in large masses. Beds of luxuriant Stocks, purple, white, and pink, quite scent the air, and *Hearts-ease* and *Violets* are abundant. A pretty rivulet, after winding about the grounds, empties itself into a lake, on which gondolas carry one to a beautiful marble temple of Diana, and thence to a Turkish mosque, a Chinese pagoda, and an Egyptian monolith. Now the gondola enters a rocky cavern or grotto coated with stalactites and with an up-growth of *Stalagmites*, and many sorts of Mosses and Ferns find a snug home in this shady recess; then one emerges from this subterranean lake and arrives at a Japanese bridge, from which spot a falling cataract showers down its spray. Unlike most other Italian gardens, this one contains large trees generally found only in more northern latitudes, such as Cedar, Decodar, Pines, and several *Firs*. These, growing side by side with the Cork tree (*Quercus suber*) and the *Camphor* tree (*Laurus camphora*), give this garden a kind of individuality peculiar to itself. The Rain tree at

* Drawn from plants in the Pine apple Nursery, Malda Vale.



GROUP OF NERINES.

1. N. PULCHELLA. 2. N. PLANTIN. 3. N. PUBICA. 4. N. HUMILIS. 5. N. FILIFOLIA. 6. N. CORUSCA.

Chatsworth is familiar to all who have visited the Peak of Derbyshire. At Pallavicini tricky water-works are numerous, particularly in what may be called the playground of the garden. Here in unexpected moments sprays of water are turned on from any and every quarter. Arums, Lilies of the Valley, and other plants grow here in profusion. Those, in short, who seek novelty in the way of garden design should visit Pegli, near Genoa.

G. W. SEPTIMUS PIESSE.

FLOWER GARDEN.

NOTES FROM SWITZERLAND.

WINTER weather, properly so called, seems to have gone out of fashion; but two years ago the frost was hard enough to kill thousands of fruit trees, and to transform as late as February our beautiful lake into a gigantic skating rink. Total absence of snow, a leaden sky, and a remarkably even temperature, varying for weeks between the freezing point and a few degrees of frost, are the characteristic features of the winter, which is hardly now drawing to an end. Everywhere from the mountains bright sunshine and warm spring-like weather are recorded. Numerous flowering specimens of *Erica carnea*, *Gentiana verna*, *Polygala Chamæbuxus*, and *Snowdrops* were gathered on January 25 at about 4000 ft. above the sea, in the Upper Klönthal. Mont Blanc and Todi have been ascended lately, and the members of our alpine club have been enjoying little Sunday excursions to the Rigi. At Davos, we are told, parasols and straw hats are in daily requisition among the winter residents of this famous "Luftkurort." From all this we have been screened by a desperately grey sky and constant fogs, which, but a few days ago, have given way to the sun, which at last seems willing again to let us see the light of his countenance.

WINTER FLOWERS.—Owing to the state of the weather winter flowers have not been plentiful here; besides Dutch bulbs and Lilies of the Valley, a beautiful lot of the late-flowering *Begonia Frobelti incomparabilis* (some flowers measuring as much as 3 in. across) has up to the end of December been the most noteworthy feature of the large span-roofed temperate house built here last summer. Greenhouses in this country are necessarily of much stronger construction than either in England or in Belgium. Some fine old Larch trees, from the Grisons (on the largest we counted over 140 annual rings), have furnished the framework for the roof, which is entirely upheld by an ingeniously designed iron support, thus excluding all pressure on the hollow side walls. *Begonia polypetala* has not flowered as well as last year; the rainy weather of the past autumn seems to have had an unfavourable influence upon its growth. There cannot, however, be a doubt that this noble plant will be universally admired when better known, the rich colour and unusual form of the large round flowers (which consist of from nine to thirteen petals) being quite an exception in the genus. The semi-double *B. octopetala* is a fine form, the compact masses of bright yellow anthers in the large male flowers being set off to advantage by the numerous pure white petals. The only fault to be found with the plant is the great length of the flower-stalks, which no doubt may yet be diminished by careful selection. The beautiful *Canna Ehemanni*, which flowered with us for the first time last summer, is in bloom again. *C. Noutoni*, another new form of the old *C. Iriflora*, is being actively propagated, and will be tried next summer. *Rogiera gratissima* is a plant which should be in every greenhouse; its delicately coloured umbels of tiny flowers have lasted all the winter, and it is now flowering

again. A strong plant of the old *Physianthus albens*, which at the foot of a south wall bears some thousands of flowers during the summer, has been housed in September, and is now ripening fruit, each of the large green pods containing a great many fine silk-tailed seeds. In an outside border on each side of the entrance to our new house hundreds of *Chionodoxa* bulbs are pushing up, and some bulbs of *Galanthus Elwesi* mixed up with them are in bloom; they will be a glorious sight next month.

COLLECTING ALPINE PLANTS was by no means an easy task last summer. Dry heat had, especially in the southern parts of the Alps, burnt up almost everything in August, and it wanted the experienced eye and utmost energy of our collector to bring together the masses of plants now growing in our beds and frames. Among the rarer species may be mentioned a fine lot of *Gentiana punctata*, the long tapering roots of which are extracted with so much difficulty if the collector can get at them at all; a good many strong plants of the lovely *Eritrichium nanum*, looking quite dead yet to any but an experienced observer, who can easily detect the minute green leaf-buds among the dried up little clumps; *Saxifraga Vandelli* and *Phyteuma comosum*, and a small number of *Draba Johannis*, a species we have not had in cultivation before. *Primula longiflora* has been gathered with great difficulty, the leaves being quite shrivelled up by the time our collector arrived at the locality. *Gentiana brachyphylla*, the dwarf *Campanula cenisia*, and *Artemisia mutellina*, the famous Edelraute of the Austrian and Tyrolean peasants, are established out-of-doors, along with the lily plant (*Achillea moschata*), *Chrysanthemum Halleri*, and other choice alpine plants. In a cool frame a few plants of an interesting cross between *Saxifraga Vandelli* and *Friderici-Augusti* we raised a few years ago, and which flowered for the first time last year, are showing buds again. We are following here with great interest the discussion about soils for alpine plants going on in THE GARDEN, and to which M. Froebel intends shortly to communicate a *résumé* of his personal experiences in the matter. The result will, however, hardly be in favour of the "granite and lime" theory set up by some of your correspondents. In a cool greenhouse are standing our seed-pans of hardy perennial and alpine plants, many of which are already germinating freely. Among hardy perennials may be noted a beautiful hybrid between *Aquilegia chrysantha* and *Skinneri*, which, growing up spontaneously in the neighbourhood of these two species, has ripened seed. This interesting cross must necessarily be the result of insect fertilisation; it is exactly intermediate between its parents, borrowing size and form of flowers from the one, and colour from the other. Of the rare *Ramondia pyrenaica alba* we possess about 200 seedlings in different stages of development, and are looking forward to the first flowers, and hope, if they should not all turn out true, to get at least some interesting intermediate forms. Several pots are filled with seeds of the large *Alnagella macrophylla* growing in our garden. Old as the plant is, there are very few flowering specimens of it to be found anywhere. We shall do our best to raise a good many young plants of this beautiful tree, the leaves of which measure with us 28 in. in length and 10 in. across.

OUR HARDY PERENNIALS were for the most part re-arranged and transplanted last autumn. The different species of *Hellebores* now occupy many beds. Among the numerous seedlings are an interesting series of plants belonging to the colchicous type, flowers of which we hope to be able to send you this spring. Some other plants related to *Helleborus Bocconi* are distinguished

by a happy combination of fine form and strange colouring. A wonderful thing is the charming little *Eranthis hyemalis*; it has been pushing up blossoms almost through the frozen soil, and the bed forms now one mass of flowers, all of which have opened during the last few sunny days. To form little colonies with *Snowdrops* and early *Scillas*, a more lovely plant is not to be found, as it increases rapidly, and once established holds its own remarkably well. *E. cilicica*, which we are growing for comparison with the European species, seems, as far as outward appearance goes, quite identical with the former, specific distinction being, according to Boissier's "*Flora Orientalis*," afforded merely by some differences in the fruit and the form of the involucre. Several thousands of *Adonis vernalis* collected last year will be a fine sight in March and April, each plant having two or three crowns. We have been glad to see that inquiries have been made lately for the fine old *Delphinium grandiflorum* fl.-pl. The plant has been grown here for the last forty years, and is held by M. Froebel to be one of the finest Larkspurs existing. Either in the open border or planted on the margin of some shrubbery the Siberian Larkspur, with its handsome foliage and tall spikes of dark ultramarine-coloured flowers, is a very desirable acquisition for every garden. Our ordinary soil does not seem to suit this plant very well; we grow it together with a collection of *Trollius* in a peat bed, where it thrives and flowers luxuriantly every year. What "*Anonyma*" in your issue of Dec. 24 calls Bugle *Pæony* we are growing here as *Pæonia corallina* (Retz). Besides the large single flowers, the dehiscent fruits constitute the chief ornament of the plant, the numerous dark seeds contrasting beautifully with the bright red colour of what your correspondent calls abortive seeds. In their description of Cyprus, Unger and Kotschy mention *P. corallina* as growing abundantly in the shade. Pine forests above Prodromo at a height of 4500 ft. above the sea, adding that the innumerable purple flowers appearing in May give a peculiar charm to the whole landscape. With us it ripens seed regularly every year.

Neumünster Nurseries.

G. L. M.

GOLD-LACED POLYANTHUSES.

FOLLOWING the example and invitation of Mr. Brockbank in THE GARDEN (p. 90), I may perhaps be allowed to say a word or two respecting Hufon's Lord Lincoln and other matters relating to Polyanthuses. Middleton for many years has been the home of florists, and the centre round which those from different parts of Lancashire and Yorkshire have gravitated; and here have been held a goodly number of Polyanthus shows, at one of which was exhibited a seedling raised by Mr. David Jackson; this was shown side by side with Lord Lincoln, and so nearly were they alike, that the judges were not able to distinguish one from the other. This so pleased Mr. Jackson, that he named it "*Lincoln Seedling*." So much did he think of it, that he parted with all his genuine Lincolns, and retained only his own seedling, which in time was distributed; gradually the word seedling is dropped, and it is now received as a genuine Lincoln. It is, however, a very inconstant flower, and since its first introduction has not been able to displace the original one. Those who have it keep wondering how it is that it does not bloom better, not knowing the reason why. Another old florist of Middleton says that he remembers Lord Lincoln selling at six-pence each, and now one must pay, as Mr. Brockbank says, half a guinea, and think oneself favoured. Mr. Brockbank speaks of Lancer and Prince Regent being nearly extinct a few years ago; by that we must understand, I suppose, in that district (Manchester). At present I have about five times as many of each as I have of either Exile or Cheshire Favourite. Sir Sidney Smith,

first shown in 1833, was also lost to this district until about three years ago.

As there has been a good deal said about dates, I think the following list, taken from the "Amateur Florist's Guide," by Mr. John Slater, Cheetham Hill, late editor of the *Floricultural Review*, printed about 1852, is as good a guide as can be got at readily. He says that all those that were known and shown in 1821 were Stead's Telegraph, Fletcher's Defiance, Yorkshire Regent, Turner's Bonaparte, Crownshaw's Invincible, Turner's Princess, Billington's Beauty of Over, Pearson's Alexander, Cox's Regent, Fillingham's Tantarara. In 1822 Eckersley's Jolly Dragon and Nicholson's Bang Europe were added to the list; in 1826 Nicholson's Gold Lace and Collier's Princess Royal. In 1833 Buck's George IV., Clegg's Lord Crewe, Sir Sidney Smith, Yond's Independence, Maud's Beauty of England, Bullock's Lancer, and Faulkner's Black Prince; 1840, Hutton's Lord Lincoln, Barrow's Duchess of Sutherland; 1844, Nicholson's King, Gibbon's Royal Sovereign, Clegg's Lord John Russell, Saunderson's Cheshire Favourite, Hutton's Lord Radcliffe, Barnard's Formosa, and Hall's Premier Pel. The above are all to which dates are attached; the following are mentioned, but without a date; viz. Brown's Free Bloomer, Crownshaw's Eclipse and Exile, Hutton's Earl Grey, and Addis's Kingfisher. By this it will be seen that there are a few blanks in modern lists, but if compared with one written about 1815 by Thos. Hogg, still more blanks are apparent; a list of forty-six names is given, and only ten appear, by the list just quoted, to have survived the test of competition up to then.

Moston.

W. PRESCOTT.

Addis's Kingfisher.—There is an excellent coloured illustration of this fine variety in the *Birmingham and Midland Gardener's Magazine* for July, 1851. It is one of the best illustrations of a Gold-laced Polyanthus I have met with; in foliage, size, and shape of truss, colour and lacing, it seems to come very near indeed to what we now grow as Lancer. Its description sets forth that "it is a noble trusser, with a strong, but not long stem." The description given of it in the work above quoted adds nothing to that contributed by Mr. W. Brockbank. I may add that what few Gold-laced Polyanthus I have look well, and, like the Auriculas, are moving forward rapidly under the influence of the present warm weather. I should think that generally there will be an early bloom, but easter-tide is always a treacherous and uncertain time. I should think that with a continuance of this weather Auricula growers will not need to apply heat to their plants in order to get them into bloom by the time of the recurrence of the Auricula shows. Probably the difficulty will be in retarding the bloom.—R. DEAN.

SOWING FLOWER SEEDS.

WITH the exception of Sweet Peas, few annuals should be sown in the open border earlier than the middle of March or beginning of April, or until the soil has become somewhat warmed by solar influence. The various varieties of Sweet Pea, however, being all perfectly hardy, are frequently sown about the end of November or early in December, and generally withstand our winters. If sown, however, early in February, or as soon as the soil is in a favourable condition for their reception, they will succeed equally well and flower quite as early. But if it is desirable to have these plants in bloom as early as possible, the seeds may be sown in small pots placed under glass early in February, and planted out where they are intended to bloom about the middle of March should the weather be favourable. The seeds of most annual flowers may safely be sown in the open border early in April, or even a week or ten days earlier should the weather be fine. And in the case of some of them it is better to sow where the plants are intended to flower than to trust to transplanting, more particularly as regards Mignonette, Nemophila, Convolvulus, Tropæolum, &c., some of which do not

transplant well. Some of the more choice varieties of annual flowers are, however, rather benefited by transplantation than otherwise, and should be sown in pots or seed-pans, or on a slight hot-bed where a somewhat moist atmosphere, with a temperature of about 60°, can be maintained, until such time as the seeds have fairly germinated, when air should be freely given, so as to prepare the plants for being finally planted where they are intended to flower. To sow such small seed as that of most of our half-hardy annuals and biennials in the open air during most seasons is not unlikely to result in failure, more particularly in the case of the various varieties of Lobelia Erinus, the Portulacas, the Pyrethrum (Golden Feather), the Perilla, and most of the species known as sub-tropical plants, all of which should be raised under glass and planted out in beds or borders towards the end of May.

Lobelia Erinus.—Let us begin with the different varieties of this Lobelia, the flowers of which are so various in colour. These Lobelias are not only effective as bedders, but also as pot plants for the decoration of the greenhouse or conservatory, in which they have a fine appearance suspended from the roof in ornamental wire baskets. It is in the flower garden, however, where these plants are most useful, as marginal plants for flower beds and borders, for ribbon lines, and for carpeting under plants of larger growth. All the varieties may, if desired, be increased by cuttings, but when required in quantity, most growers prefer to raise them from seed annually, and when the seed is saved from plants which when in bloom have been isolated or kept apart from other sorts, such seed will generally produce plants tolerably true. The seed may be sown in autumn in pots or pans, and kept in a greenhouse temperature throughout the winter. In spring the young plants may be pricked off into pans or boxes or potted singly in small pots and planted out with other bedding plants in May. Or the seed may be sown in heat about the middle of February, and the plants, when large enough, pricked off into other pans, from which they will be ready to plant out about the time named.

Stocks, Wallflowers, and Asters.—The many varieties of double Stock are exceedingly beautiful, fragrant, and useful annual flowers. They are in various sections, such as the Ten-week, the Intermediate, and the East Lothian. They should be sown under glass about this time, to be succeeded by later sowings made in the open border up to the end of May. The Brompton varieties, together with the fine kinds of double German Wallflowers, should be sown in July to flower early during the following summer and spring. The China Asters form very fine decorative plants in various sections; all of them are exceedingly beautiful outdoor plants, and they may also be lifted from the beds or borders, potted, and used most effectively for the decoration of the greenhouse. Sow the seed in the first week of April in pans or boxes, which should be placed in slight warmth and successional sowings may also be made in the open air.

Zinnias, Everlastings, and Indian Pinks.—Seed of the double Zinnia elegans should be sown in gentle warmth about the first week in April; the plants when large enough should be potted singly, and being rather tender should not be planted out until after the middle of May. They are remarkable for the diversity of colour, form, and beauty of their flowers, which are exceedingly useful in a cut state for vases, &c. The Everlasting Flowers, comprising the *Acrocliniums*, *Helichrysums*, *Rhodanthes*, *Xeranthemums*, &c., are all beautiful border plants, and their flowers are valuable for forming bouquets for placing in vases. The varieties of the Indian Pink (*Dianthus sinensis*) make good bedding plants, and the flowers of most of them are remarkably beautiful. It is perfectly hardy; seed of it may be sown in the autumn on the open border, or under the shelter of a frame, and the result will be an early bloom the following summer, or the seed may be sown in slight heat under glass early in March.

Phloxes and Petunias.—Phlox Drummondii and its many varieties are quite distinct from the species and varieties of the perennial Phlox. They are all useful plants for bedding, as they continue to bloom throughout the season. They are well adapted for planting upon rock-work, or as drooping plants from rustic baskets, or otherwise. They flower very freely, and their blossoms are richly coloured and of many hues, which makes them useful in a cut state. The seed should be sown about the middle or end of March in pots or pans placed in a gentle heat, and the seedlings when large enough should be pricked off into other pans of rich, light soil. When gradually hardened they will be ready to plant out early in May. The Petunia, although a perennial, may also be successfully grown as an annual, and as such forms an excellent bedding plant. It may be treated in all respects the same as has been recommended in the case of the Indian Pink, only the plants should not be planted out until after the middle of May, or when all danger from frost is over. They will generally commence to bloom before the month of June has ended, and will continue to do so profusely until stopped by the autumn frosts. The various sorts will generally come true from seed provided the plants furnished from the same were isolated when in flower; few beds will be likely to surpass in beauty those planted with such varieties of this plant as the Countess of Ellesmere, Kermesina, and other choice sorts.

Pelargoniums and Ageratums.—The zonal varieties of Pelargonium may also be treated as annuals, only in their case, in order to get the plants to flower as early in the season as is possible, the seed should be sown as soon as it is ripe, or not later than the beginning of September. The Ageratum mexicanum, and more particularly its dwarf varieties, are all free-flowering, and very effective bedding plants; the flowers are pale blue, or French grey in colour, with the exception of a few varieties which have white flowers. They are generally increased by cuttings, but they come tolerably true from seed if the plants intended to produce them are carefully isolated from other varieties when in flower. The seeds should be sown in pans about the middle of March, and the plants either potted singly or pricked off into other pans when large enough, and gradually inured to the open air; but, being rather tender, they should not be planted out until the end of May.

Sub-tropical garden plants.—Several plants of a strong growing kind are used with good effect in what is known as sub-tropical gardening. Many of those used for this purpose are quite hardy, but tender species are also employed, and some of them may be raised as annuals from seed sown early in the season in heat. When sufficiently large the seedlings may be potted off singly into small pots, to be afterwards repotted into larger ones, so as to be of considerable size when the time arrives for planting them out; and with some of them at least this cannot be safely done before the beginning of June. They consist of such species as the *Aralia* and the *Cannas*; the latter, in addition to their fine picturesque foliage, have also conspicuously beautiful flowers. They do not, however, always come quite true from seed; and if this condition is particularly desired, plants obtained by division should be used. The Hemp plant is remarkably effective when used in this style of gardening, for which *Heracleum giganteum* and *H. Panaces*, or the Cow Parsnip and Cow Parsley, are also often used in connection with other large and umbrageous plants suited to the purpose, such as several species of the *Nicotiana* (or Tobacco), the *Ricinus communis* (or Castor-oil plant), berry-bearing *Solanums* of various kinds, and *Centaurea candidissima*, and *Cineraria maritima*, &c., with their fine silvery foliage.

Hardy perennials.—Among many species of hardy perennial plants, the seed of which may with advantage be sown annually in order to keep up a stock of healthy plants, may be mentioned

the garden Anemone, or *A. hortense*, the seeds of which should be sown in the open air where the plants are intended to flower early in April. The seeds are apt to cling together, and should consequently be mixed with sand and well rubbed in order to separate them, and when sown should be gently pressed into the soil and lightly covered. The seed of the hardy *Primrose* is better to be sown under glass early in March, together with that of the *Polyanthus* and *Anemone*. When strong enough the seedlings should be planted in beds, or otherwise where they are required to flower. The some course may be pursued with *Pinks*, *Carnations*, *Picotees*, and *Pansies*. The *Aubrietias*, such as *A. greca* and *A. purpurea*, are exceedingly useful perennial plants, and if seed of them is sown about the beginning of April, the produce will flower in less than twelve months from the time of sowing. The beautiful *Delphinium* sinense, if sown under glass in April, and the seedlings afterwards bedded or planted out, will bloom during the following September, but will do so more profusely during the second summer; and the flowers of this plant, being of an intense blue colour, are very useful in a cut state in glasses, &c. The varieties of the *Aquilegia*, or *Columbine*, are likewise all hardy and handsome perennials. The flowers of such species as *A. corulea* and *A. Witmanniana* are blue and white and remarkably beautiful. The flowers of *A. chrysantha* are bright yellow, and those of *A. Skinneri* scarlet and yellow, and all of them are exceedingly useful when cut. Seeds of them should be sown in pans early in March in gentle heat, and in due time the seedlings should be planted out in beds or on borders. Thus treated, such species as *A. corulea*, or the *Rocky Mountain* variety, will generally bloom to some extent, during the succeeding autumn, and will do so in great profusion the second season. The seeds of some of the finest hardy perennial herbaceous plants do not germinate very quickly in heat, but they will, nevertheless, in course of time come up, when the pots or pans containing them should be placed in a frame or cold pit. It may also be observed that the seed of the *Aquilegia* refuses to grow when more than a year old.

Bury St. Edmunds.

P. GRIEVE.

Hyacinthus candicans.—Those who have not yet got this *Hyacinth* would do well to add it to their collections, as unquestionably it is one of the finest hardy bulbs we have. It throws up stout flower-stems from 3 ft. to 4 ft. high, the top portion being clothed with large white funnel-shaped blossoms. As a pot plant it is very effective, and of great value mixed with others on a stage, where, with the flower-heads clear above the foliage, it has a striking effect. Being of rather strong growth and making a good deal of root, it requires plenty of pot room. It should have rich sandy soil to feed on, and during summer plenty of liquid manure, which will help it to form fine leaves and to bloom well the year after. When grown in borders it should be planted about 6 in. deep, and have some sand placed around the bulb, the sand being a good protection against rot. As it seeds freely, plants of it may be raised in that way, but it takes some years to get the young plants strong enough to flower. Bulbs are, however, cheap, and if planted at once they will bloom during the summer.—S. D.

Single Wallflowers.—Although these are plants of the easiest culture—in fact, will grow on the top of a wall—they are by no means, as a rule, well cultivated, although their fragrant blooms are welcome in early spring both in castle and cottage. Market gardeners grow them as an under crop between bush fruits, and in large cultivated orchards. But whether for market or private garden they should be sown early; therefore no time should now be lost in getting the seed into the ground, for good bushy plants to be in full flower during March and April cannot be grown much under twelve months. Sow in drills, and as soon as the seedlings are large enough to handle transplant them 1 ft. apart. Keep the ground clean

by means of surface stirring; water in dry weather, and by the autumn they will be dwarf little bushes, fit for filling beds or vases, and during March, April, and May they will produce a bountiful display of bloom. The sorts we rely on are the *Dark Blood Red* and *Belvoir Castle Yellow*, which, if kept true, are excellent in every respect.—J. GROOM, *Linton*.

FRITILLARIA PALLIDIFLORA.

OUT of the score or so of species of *Fritillaria* there are few that commend themselves to the notice of the general cultivator. Those possessing brilliant colours, such as *F. recurva*, *imperialis*, *pubica*, *aurea*, &c., are, however, important garden plants, but the others are generally left to the care of the curious or botanic garden. There is one, however, with dull coloured flowers that is really handsome, on account of its fine habit of growth and the elegant form of the blossoms, viz., *F. pallidiflora*, a species found in Central Siberia and other parts of Asia, and introduced to the Imperial Gardens, St. Petersburg, by Dr. Regel. When well developed this grows from 1 ft. to 1½ ft. in height, its erect

belief which I now think is a popular fallacy. For five or six years after I had made the statement I tried in every way by high cultivation and low cultivation, and every kind of soil, to produce a double *Daffodil* from a single one, but I never could make the least progress. Others, who supported me in what I had said, made the same attempt, but failed in the same way. I have found that several kinds of double *Daffodil* will revert to apparently single forms, though I believe they are not fertile stamen-bearing single forms, but I have never found any single *Daffodil* change its flower to double. I may add that I find that the tendency of the single wild *Daffodil* is to degenerate in garden soil, and that some clumps I have planted amongst the trees amongst the Grass in the natural soil are both much finer and much earlier than those planted in the borders at the same time.—C. W. DOD, *Edge Hall, Malpas*.

Cheiranthus Marshalli.—With reference to Mr. A. Veitch's query (p. 145) as to the fertile properties or otherwise of this plant, I fear that I can give him but little help in determining the point. Although I have grown this *Cheiranthus* for many years under all sorts of conditions, and have seen it growing elsewhere under liberal culture, and also under starved culture, yet I have



Fritillaria pallidiflora.

stems being clothed with glaucous foliage and terminated by a small cluster of blossoms, as shown in the annexed illustration, which represents a part of the plant (life size). The colour of the flowers is a yellow-green with blotches of deep vinous-purple at the base of the flower-cup. It is perfectly hardy, and grows well in ordinary garden soil on a warm exposure, where the bulbs can become well ripened. It might prove to be a valuable plant for purposes of hybridisation with some of the more delicate species possessing brightly-coloured flowers.

W. G.

Single wild Daffodils becoming double by cultivation.—On page 160 "G. L." makes a statement which calls for attention that "the single *Daffodil* would generally become double in his garden, sometimes the next year after being dug up wild from the field." Ten years ago I made a similar statement in the *Gardeners' Chronicle*, which was at once challenged by Mr. Barr and other experienced horticulturists, who defied me, under any circumstances, to turn a single *Daffodil* into a double one. I was then inexperienced in gardening, and had merely repeated a popular

never seen it bearing seed. I have tried crossing it with *Belvoir* yellow *Wallflower*, but always without success, and that two members of the same family so closely allied should thus refuse to assimilate renders it hard to understand how it came about that *Cheiranthus ochroleucus* and the *Orange Erysimum* should have proved more ductile. I saw a few years ago a number of seedlings raised from C. Marshalli by Mr. Jas. Allen, Shepton Mallett. They were, I believe, natural seedlings, and several of them bore a much closer resemblance to the *Erysimum* than to the *Cheiranthus*, being tall and somewhat weedy in growth, and I think in every case they soon died, being evidently deficient in that perennial character which renders C. Marshalli such a charming border plant. Although it may be imagined that this apparent infertility on the part of Marshalli bears out the statement as to its hybrid origin, yet I think those who have grown C. ochroleucus or C. alpinus have not been able to get seed from either of these, with the exception, of course, of Mr. Marshall. It is to be regretted that these perennial *Wallflowers*, C. Marshalli especially, should be found so little in gardens, the rich orange hue of the flowers of this kind being very striking and broad patches exceedingly effective. Plants of this *Cheiranthus* like good soil, a little

shade, and occasional top dressings to promote bottom growth and free rooting.—A. D.

FICARIA GRANDIFLORA.

ONE of the brightest ornaments among the earliest of our spring flowers is this Pilewort—



Fl. wcr of *Ficaria grandiflora* (natural size).

the value of which is as yet not half enough known. It is really a bold, handsome flower, suitable either for adorning the flower border early in spring or for cutting purposes, for, unlike its congener, the common Pilewort, it bears its flowers on tall slender stalks amidst rich green foliage. Though this plant is grown well in several places about London, we have never met with it in finer growth than at Tooting, in Messrs. Barr & Sugden's grounds, where there is a broad, dense mass 1 ft. or more high, and which just now is a mass of golden yellow, conspicuous from all parts of the grounds. It seems to revel in the retentive soil of this place, for it is a plant that will not take kindly to dry, poor soil like that at Kew. As an early spring flower it is much to be recommended. It is known also as *F. calthefolia* and *Ranunculus Ficaria grandiflora*. W. G.

Gentiana verna.—I had two bits of this brought to me direct from the Continent. They were put in pots and taken care of for two years, but they did not grow well, and about two years ago I planted them in the herbaceous border, which is in a very exposed situation, and the soil of a heavy, stiff character. The only preparation

made was digging a hole and putting 4 in. or 5 in. of broken pots in the bottom of it. Thus situated, the plants soon began to improve, and now they are two beautiful, compact specimens, about 6 in. in diameter, and covered with their beautiful blue flower. It will, therefore, be seen that full exposure instead of coddling suited this Gentian best in this case.—JOHN MATHISON, *Addington, Windsor.*

Kniphofias (Tritomas).—In reply to "T. E." (p. 162) allow me to state that K. Saundersi, as well as K. nobilis, are the most beautiful and the largest flowered varieties ever raised or ever found of K. aloides (Moench). The spikes of Saundersi are of a pleasing fiery brick-red uniform colour; they are cylindrical, and I had many spikes 13 in. long, but 12 in. is the average size. K. nobilis is partly bright yellow, and partly fiery red; the spikes are not so long as those of K. Saundersi, but what little they lose in length they gain in breadth, being somewhat egg-shaped.—MAX LEITCHLIN, *Baden-Baden.*

Valerian.—Many doubtless have noticed masses of the rosy-coloured flowers of this native plant hanging on the almost perpendicular cuttings in the chalk cliffs made by railways in various parts of Kent, and, like Gorse and many other natives, brilliant as any bedding plant. Any one requiring a useful plant for some semi-wild garden ought to give the Valerian a trial. Get a packet of seed and sow it with ordinary annuals and biennials at once; as soon as the seedlings are large enough, plant them out where they are to remain. They will last for years, and reward one for any care bestowed on them with their cheerful flowers.—J. G., *Linton.*

Dahlias from cuttings.—Dahlias are as easily propagated from cuttings as Pelargoniums or any other soft-wooded plant. When the roots are placed in a growing atmosphere they soon produce shoots, which have a tendency to run up rapidly, but they may be stopped from doing this if the points are taken off them. These should be made into cuttings, placed in 2½-in. pots filled with sandy soil, and plunged in a gentle heat. They will soon emit roots and form plants long enough for any purpose.—J. MUIR.

Tussilago fragrans growing wild.—Last December I received a root of this plant in flower from Truro, which, my correspondent in-

Andries, on the north coast of Somerset. In this case, though quite naturalised, it had evidently been planted out, for, side by side with it, I found other non-indigenous plants. It is satisfactory to be able to record cases of successful naturalisation such as this, and, as the love of herbaceous plants is so much on the increase, we may hope to hear cases of a similar character elsewhere.—J. M. BURTON, *Hightfield, Gainsboro'.*

Hardy plants in flower.—Here these are fairly abundant, but we had three or four nights of sharp frost from which they have experienced a check, and blackening of the new growths in the case of many sorts. Crocuses, Scillas, Primulas, Narcissi, and Anemones yet form the staple bloom, but others are not wanting, as the following list will show:—

Forget-me-nots	<i>Saxifraga crassifolia</i>
<i>Hepatica triloba</i>	<i>orbicularis rubra</i>
<i>cerulea fl.-pl.</i>	<i>Pulmonaria mollis</i>
Barlowi	<i>m. alba</i>
splendens and seedlings	<i>sibirica</i>
<i>Omphalodes verna</i>	<i>azura</i>
Crocuses	<i>Scilla sibirica</i>
<i>Polyanthuses</i> (including	<i>taurica</i>
gold-laced)	<i>lilifolia</i>
<i>Epigonarepens</i>	<i>nivalis</i>
<i>Soldane la alpina</i>	<i>Cardamine trifolia</i>
<i>montana</i>	<i>asarifolia</i>
<i>Sanguinaria canadensis</i>	<i>Erythroniums</i> (white, purple
<i>Ficaria grandiflora</i>	<i>etc.</i>)
<i>Orobis verus</i>	<i>Doronicum caucasicum</i>
<i>Hellebores</i>	<i>austriacum</i>
<i>Muscari azureum</i> (?)	<i>Draba aizoides</i>
<i>racemosum</i>	<i>cuspidata</i>
<i>botryoides</i>	<i>Allium paradoxum</i>
<i>Claytonia sibirica</i>	<i>Hyacinthus</i>
<i>Iris reticulata</i>	<i>Anemone stellata</i>
<i>Auricularis</i>	<i>memorosa fl.-pl.</i>
<i>Primroses</i> (double and single)	<i>apennina</i>
<i>Primula marginata</i>	<i>julgens</i>
<i>casmieriana</i>	<i>Narcissus minimus</i>
<i>pulcherrima</i>	<i>Jonquilla</i> and others
<i>nivalis</i>	<i>Erica carnea</i>
<i>Denaria digitata</i>	<i>Bulbocodium vernum</i>
<i>Saxifraga oppositifolia</i>	<i>Chionodoxa Lucidie</i>
<i>o. retusa</i>	<i>Pansies</i> and <i>Violas</i>
<i>najor</i>	<i>Viola</i> s
<i>alba</i>	<i>Corydalis solida</i>
<i>pallida</i>	<i>Arabis</i> in vars.
<i>Rochelliana</i>	

—J. WOOD, *Kirkstall, Yorks.*

Propagating Violets.—The best time for increasing one's stock of Violets, and laying the foundation of another year's supply, is directly after they cease flowering, or in the case of those that have been under glass, such as the Neapoli-



Ficaria grandiflora: showing habit of growth (much reduced).

formed me, was growing wild there in great profusion under hedges by the roadside, though it had no doubt escaped from some garden originally. Since then I have met with a large patch of it on the side of a cliff, facing the sea, near St.

tan, Marie Louise, and others, some time during the month of April. The plants should be forked up and pulled to pieces; then all the sturdy single crowns should be selected and planted out in rich, deeply-cultivated beds, 5 ft. wide, and

partially screened from the sun. Alleys should be left between the beds to afford convenience for watering and cutting off runners, as if these operations are not strictly attended to Violets are never satisfactory. I have heard many complain of scarcity of blooms this winter, but we have never had them finer or more abundant. The lovely dark blue Marie Louise was in flower when lifted in September, and is still covered. Large clumps of this have produced some hundreds of blooms with very long stalks. It is altogether stronger in constitution than the Neapolitan, but both are worthy of extensive culture. The single sorts, such as Czar, are best grown from runners every year. In mild winters Violets keep on flowering without check without any protection; but some movable frames should be in readiness for covering a portion if severe weather sets in. As one can hardly be overdone with Violets, we plant the old clumps not required in partially shaded positions in the woodland garden, where we generally get a supply for gathering two or three weeks after the more highly cultivated ones are over.—J. GROOM, *Lincoln, Kent*.

Scopolendrium Kelwayi.—In THE GARDEN (p. 161) Mr. Munro informs us that this Scopolendrium was raised from spores by Mr. Baxter about ten years ago. It would be interesting if Mr. Munro or Mr. Baxter would tell us the name of the Scopolendrium which produced those spores. Mr. Munro further states that this Fern came into his hands six years ago, and was distributed by him under the name of S. Baxteri. Scopolendrium Kelwayi was exhibited at South Kensington by us, and obtained a first-class certificate in August, 1868, and was put into commerce by us in 1876. It will thus be seen that S. Kelwayi was exhibited by us four years before Mr. Munro states it was raised from spores by Mr. Baxter, and seven years before it came into Mr. Munro's hands.—KELWAY & SON.

SHORT NOTES—FLOWER.

Tuberous rooted Begonias.—(C) Potnow; they will do well in a cold frame and make good plants to plant out in the first week in June. When the shoots are above ground give air freely to encourage sturdy growth.—L.

Nottingham Catchfly.—Can any reader of THE GARDEN tell me where to procure plants of *Silene nutans*, the Nottingham Catchfly? I should be pleased to exchange other plants for it.—M. P. FORSTER, *Backworth House, Newcastle-on-Tyne*.

Canna Ehemanni.—M. L. Kropatsch, of Laxenburg, Vienna, informs us that this fine plant, figured in THE GARDEN a short time since, is a variety of *C. trifidifolia*, having been raised by M. T. F. Fikentscher, an ardent lover and cultivator of Scitamineaceous plants, who died three years ago at Regensburg, in Bavaria.

Pelargonium leaf.—(W. H.) There is no fungus on the leaf; fungi usually attack from below; the injury in this case is on the top, and is probably caused by the bite of some small insect, or from minute drops of water scalding the surface of the leaf in the sun.

Nicotiana affinis.—(L.) (p. 174) remarks that this plant only opens its flowers in the evening; my plants do the same. I have the best part of a dozen in flower just now, and I find that they emit a very sweet scent when fully open; still, only opening in the evening is a fault.—R. GILBERT, *Burghley*.

Edraianthus dalmaticus.—Can anyone tell me if this plant wants special treatment at this time of the year? and if so, what? I got an apparently healthy plant of it about three weeks ago, but although I have done nothing to it except shift it into a larger pot (on its beginning to fail), it now seems to be dying. I have kept it in and out of the frame. Should it have greenhouse heat when in a growing state?—J. C. L.

Cyclamen Coum vernum.—In reply to "M. B. A." (p. 126) I may say that this can be hybridised any time when the two plants to be used are in flower together. Take out the anthers before the bloom expands in the case of the seed-bearing plant. Note that the anthers are porandrous, discharging the pollen from the tip or upper extremity. The pollen may be squeezed out by pressure between the fingers. Isolate the female plant, i.e., from any of the same species.—T. C.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

Wild Daffodils and their garden relatives are now some of our most valuable plants for indoor decoration. About a hundred flowers of the common single garden kind (N. Pseudo-Narcissus) are placed in a large china bowl with leaves here and there. They stand upright in bold masses, supported by Moss below the water; the heads stand at various heights, the stalks being of different lengths, and all touching the bottom. Such a mass of delicate yellow is a cheerful object in a living room. A bold group of the great golden Daffodil (N. maximus) stands in an upright jar of dark blue porcelain; they are cut their full length of 22 in. A broad shallow bowl holds profusely flowered sprays of scarlet Japan Quince and Almond blossom; it stands high, and is well seen against an ebony cabinet. Another china bowl, large and deep, is filled with an important mass of blood-red Wallflowers; they are at their best when only the lower flowers are expanded, leaving a good space of the brown-purple buds in the centre—the whole year gives us few such feasts of splendid rich colour as such a bowl of Wallflower. From the greenhouse there are Tea Roses Madame Falcot and Souvenir d'un Ami. The foliage of forced Roses is unsatisfactory limp in texture, and of an even, dull, uninteresting green; we therefore substitute some old leaves of *Maréchal Niel* from the open air; these are large, stiff, polished, and of a bright golden green that suits well with the pink and copper-yellow Tea Roses, and they have crimson stains and spots that add to their interest and colour-value. In an entrance hall stands a large white Indian Azalea, a mass of bloom about 3 ft. through, not trained in the stiff pyramidal shape so commonly seen, but grown as a graceful and naturally shaped bush; it is accompanied by plants of *Aralia Sieboldi*.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Cannabis gigantea (Giant Hemp).—Among the numerous species of plants that can be used in flower gardens during summer months there is not one that requires so little attention, or that attains effectiveness so quickly, as the Giant Hemp. Last year we sowed seeds of it in warmth on the 16th March, and grew the young plants on in an intermediate house till the end of May, when they were transferred to the beds, which they completely furnished by the beginning of July, and before the end of August many of them were upwards of 9 feet high and bushy in proportion. They show themselves off to the best advantage when planted in groups of three as centres to large beds, surrounded with *Ricinus* Gibsoni, and edged with *Cineraria maritima*. As a background or screen to hide for the summer months any objectionable fence or wall, their feathery, tall, bushy, and rapid growth renders them worthy of attention, even if only by way of a change from the never ending Scarlet Runners, Gourds, Canary Creepers, and Convolvulus generally used for such a purpose. The plants require deep rich soil and plenty of space, at least 4 feet for each plant, and they must be kept tied to stout stakes as growth proceeds. Sow now, grow in a temperature of 55°, and plant out any time after the 20th of May.

General work.—In order to get all extraneous work out of hand, we are as rapidly as possible finishing up Laurel and hedge cutting, applying mulchings to recently moved trees and shrubs, and edging and regraveling roads and walks. These done, mowing and the general preservation of neatness will constitute the whole of what we term our "far afield" duties. Local ones consist in affording beds of spring flowers timely attention; Hyacinths must be tied, and the less hardy flowers protected from the sharp frosts that generally prevail at this time. Where

any of the beds are vacant, summer bedding arrangements may be determined, and the edgings and ground-works of hardy plants got out. *Herniaria*, *Cerastiums*, *Sedums*, *Saxifragas*, *Thymes*, *Violas*, *Pansies*, and small shrubs are a few of the kinds the planting of which we hope soon to finish. As used here in the formation of upright edgings, 4 inches high, *Herniaria glabra* makes the most perfect green fretwork wall that can be conceived, and naturally grows so dwarf and dense, that it requires no attention to keep it in form. As edgings of *Echeverias* and *Sempervivums* have become so common, and look so formal and artificial, and as for such purposes there are so many better plants, their use in this way should be discontinued, but as a ground-work for taller succulents they are in every way appropriate, and when so used and allowed to flower, which they do profusely, succulents may safely be classed among the most quaint, yet gay, of all summer bedders, and in all weathers effective.

Bedding plants.—*Alternantheras* are growing so freely that abundance of cuttings may now be had from them at any time, and the hotbed mode of propagation described in a former paper is by far the best way to strike them, the frames being moved or thrown quite open as soon as the plants have become well established. *Coleuses* and *Iresines* may still be struck, and those cramped in cutting pots may be potted off. These are both so long in starting when first planted out that, with a view to immediate effect, the aim should be to get the plants large before planting-out time. As increased space will daily now be needed for the tender kinds of seedlings, all sorts that will stand a degree or two of frost should be put out into pits or sheltered spots. *Lobelias*, *Verbenas*, and *Petunias* we put in turf pits and cover up with straw hurdles or felt frames. *Calceolarias*, *Gnaphalium lanatum*, and *Abutilons* are placed at the foot of the fruit walls, where they have the benefit of the wall covering. Most kinds of *Pelargoniums* are also quite safe under the same conditions. The tricolor section must, however, yet have glass shelter, but be given abundance of air on all favourable occasions. Seedlings of *Solanums*, *Wigandias*, *Daturas*, single *Dahlias*, and others sown a few weeks ago will now be quite ready to pot off, and when done place them in a close, warm atmosphere, and shade them for a few days till the roots have started in the new soil. Castor-oils should always be sown singly in pots, as they are bad subjects to handle in the seedling state. There is yet ample time if sown now to have good plants by the end of May; those sown earlier will be ready to remove to a cooler atmosphere to be grown on in plenty of light, otherwise the growth becomes attenuated and the plants liable to be severely crippled when first planted out. The same remarks apply to *Tobaccos*, *Ferulas*, *Acacia lophantha*, and *Grevillea robusta*. In mild weather draw the lights entirely off frames in which seedlings of *Asters*, *Phlox Drummondii*, *Everlastings*, and others of the annual and biennial sections are growing, and prick them off or thin them out as soon as they can be handled; even if the surplus seedlings should be destroyed it is better than that all should be injured by overcrowding.

PROPAGATING.

Cyanophyllums.—Any of these that have lost their leaves during the winter, or that have become too tall, should be cut down and the tops inserted as cuttings. If put in now they will root quickly; the old plant will break out freely, and yield a goodly number of cuttings, which, if it be required to increase the stock, should be taken off and struck as soon as they attain sufficient strength. In preparing the tops leave about three pairs of leaves, and cut them off at the joint immediately below the bottom leaf; then insert them in pots of sandy soil and plunge them in a close case in a bottom-heat of from 75° to 85°. Before plunging them give a good watering to settle the soil, and keep them afterwards moderately moist till rooted, which will soon take place, especially if in a

vigorous condition. It will be necessary to shade during sunshine, the object being to keep the leaves in as perfect condition as possible.

Rhododendrons of the greenhouse section, such as *Princesses Royal*, *Alexandra*, and *Helena*, besides the newer kinds called *Taylori*, *Duchess of Edinburgh*, *Duchess of Teck*, and others, will, if in good condition, by this time have made new shoots, which will root without much difficulty and form useful plants. As these shoots, which should be about half ripened, consist of a cluster of leaves with a good length of bare stem below them, they form when taken off ready-made cuttings, but in removing them always leave two or three buds on the plant, in order to give it the means of furnishing itself with new growth. Sometimes the shoot removed is too long to be used in its entirety; in that case, it may be cut to the required length, but the buds at the base hasten the rooting process, and should be left on if possible. The soil most suitable for such cuttings is fine sandy peat, with a liberal admixture of crocks, broken very small, or pounded charcoal. In this they will root far more readily than in peat and sand alone, the young roots evincing a great partiality for the broken crocks by clinging closely around them. Use small, clean, well-drained pots for the purpose, and insert the cuttings firmly; then give them a good watering, and place them in a close case in a temperature of from 65° to 75°; water and shade them as may be required; if too damp, give air for a little time. A sharp outlook must be kept for thrips, which, if once a lodgment is gained, will increase rapidly in the confined atmosphere, and greatly disfigure the leaves.

Phloxes and Pentstemons may, where scarce, be propagated now in the same way as *Chrysanthemums*—viz., as the young shoots come up cut them off and make cuttings of them, which should, however, if possible, be put where there is a little heat, say on a gentle hobbed. If the plants are in pots they should be kept close a few days before the cuttings are taken off. Cuttings struck in this way make good little flowering specimens the first season, but of course the above method will only need to be used for scarce kinds, but where large masses exist division is the best mode of propagation. T.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Heaths.—If the different varieties of soft-wooded winter-flowering Heaths, such as *hyemalis*, were cut back freely after blooming they will now have started into growth, and should be potted at once. Pots 2 in. larger than those they are already in will, in most cases, be sufficient; no disturbance of the roots should be attempted; merely remove the crocks from the bottom of the ball. Stock of this kind is often pot-bound, and therefore the new soil must be rammed more than ordinarily solid, otherwise in watering the water will be sure to pass through the new material, leaving the old ball dry. A mistaken impression often exists as to the time Heaths generally should be potted. Early in the spring before the weather gets hot, or in the early autumn after the dry, parching season is over, are the safest times for repotting, and where any portions of the younger description of stock are suffering from want of root room, I should not hesitate to move them now, even though their blooming season is approaching, as if the potting is managed with the care it should be, so as not to injure or disturb the roots, the flowering will be little interfered with. The principal thing is to see that each plant has the soil well moistened before being shifted, and to place them for two or three weeks afterwards in a pit or house with only a little air given at the roof, or on one side so as to avoid the drying effects of a thorough draught, for although Heaths are essentially air-loving plants, and will not succeed for any length of time with a deficiency of it, yet for the short period named, until the roots begin to move, no harm will be done. A word as to the description

of soil suitable for the different sections of these plants. The hard, black, hungry peat that used at one time to be all but exclusively used for Heaths in general is anything but the best, and its use alone should be confined to the slowest growing, hardest-wooded varieties. All the freer growing kinds will make much better growth in peat of softer texture, which contains much more vegetable fibre, and is usually brown in colour. This seldom has much sand naturally in it, and consequently in its preparation proportionately more must be added.

Hard-wooded greenhouse plants.—In potting these, commence with the freest growing sorts, such as *Genistas*, *Acacias*, *Boronias*, *Eriosemons*, *Polygalas*, *Cilanthus*, and others of a like description, giving them pot room proportionate to the more or less naturally vigorous habit of the respective kinds. It may be well to remind those who may not have had much experience with plants of this character that they will not tear partial removal of the old soil in the operation of potting, and that unless they have sufficient pot-room they soon get naked and deficient of foliage at the bottom, a condition which makes them more eyesores than ornaments.

Vallotas.—These handsome late summer flowering plants will now be making growth, and, where required, larger pots should be given them, yet discrimination here is required, for in common with most bulbous subjects of a similar character they do not succeed well if over-potted. Vallotas may be increased by the quantities of offsets which they produce, and which if allowed to remain attached to the old bulbs soon impoverish and over-crowd them. It is therefore well at this season to remove all the little bulbs, putting them in small pots about 1 in. apart just within the rim like cuttings, and using, as in the case of old bulbs, good holding loam with a little sand, making it firm, as they do not succeed with light potting. An ordinary greenhouse temperature is sufficient during the growing season, but, like a good many kindred species, these Vallotas enjoy a few degrees more warmth during this and the following month if at the same time they are accommodated with a light position, otherwise the extra heat would induce over-lengthening of the leaves.

Brugmansias.—Few plants are more easily managed than the *Daturas*, or rather *Brugmansias*, yet they are not so generally cultivated as they deserve to be. Cuttings put in now in the ordinary way and placed in a little warmth will soon strike and make nice flowering plants in a year, forming beautiful objects when in flower in conservatories, halls, and similar places; they also come freely from seed, which, if sown at the present time and placed in a little warmth, will soon germinate, after which, when large enough, the seedlings must be put singly in 3-in. or 4-in. pots, giving them more space as the season advances. Old plants that require more room should now have a shift, using pots or tubs, regulating the size of these by the extent available for the plants, as they will bloom fairly well in 15-in. pots; still, so confined the size and quantity of the flowers are much less than is attainable with more root space. Large plants that were cut back after blooming, and that have made some growth, should now be repotted, giving them good turfy loam with some sand added, and as soon as they begin to make free growth, manure water ought to be given regularly.

Double Primulas.—The flowering will have somewhat weakened the plants, and it is better to now pinch out the bloom-stems as they appear; this is the more necessary where an increase of the stock is required. Where large plants exist these may now be divided, separating the crowns and inserting them singly in small pots, placing them in an intermediate heat, and so far confined under propagating glasses as is requisite to prevent flagging, but no more than this, as if kept so close as some things require damping off will follow.

Propagation of winter-flowering plants.—If, as advised some weeks ago, a

sufficient number of cut-back plants to furnish the requisite quantity of cuttings have been placed in heat enough to induce free growth, the cuttings should now be ready for putting in. A brisk stove temperature is necessary to strike them, and no time ought to be lost in getting them rooted, for on this much depends their becoming strong enough to flower well.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Peaches and Nectarines.—Now the sun is gaining strength, timely ventilation, good syringing with tepid, soft water, and liberal supplies of warm, diluted liquid will be imperative. Let the night heat range about 58° when mild. Stop the fires early on bright mornings, and syringe as the temperature begins to rise. Give a little air when it touches 65°, gradually increase it until 75° is attained with a free circulation, reduce in like manner, and finally close at 70° with a copious syringing. Although I have often drawn attention to the importance of mulching inside borders, I must again urge the necessity of getting the surface roots well covered with short manure for the twofold purpose of exciting them into activity, as well as for giving off atmospheric moisture so much needed by the tender foliage through the hottest part of the day. All the base shoots having been neatly heeled down, pinch in intermediate growths to form spurs and avoid laying in more wood than is wanted to furnish the tree and carry next year's crop. Allow weak growths to have freedom and balance the flow of sap by stopping those which are likely to become gross, and tie them down to the trellis. Look well to mid-season and late houses and see that trees having their roots in external borders do not suffer from want of water. It does not often happen that outside borders get dry before midsummer; but this has been an exceptionally dry spring, and radiation under a powerful sun being very great, a good covering with old lime rubbish followed by a little long litter, while admitting warmth will prevent the escape of moisture from the surface roots. Keep late houses fully ventilated until the fruit is set, and syringe freely when the petals begin to fall. If the ripening is to be delayed until late in the season, retard as much as possible through the early stages, when a low night temperature is so beneficial to all kinds of stone fruit.

Figs.—If the early pot trees started in November have been kept in a bottom-heat of 70° the fruit will now be swelling rapidly, and, favoured by one of the most genial winters on record, some of the most forward fruits may be expected to ripen early in April. With a continuance of favourable external conditions allow the temperature to range from 60° to 65° at night, 70° to 75° by day, and 80° to 85° after closing with sun. Give air at 70°, gradually increase it as the day advances, and economise fire heat by closing early. Syringe well twice a day, otherwise the foliage will soon be infested with spider, and keep the roots well supplied with diluted liquid or guano water until the fruit begins to ripen, when more air and a drier atmosphere will be necessary, but even then a liberal supply of water must be given to the roots, as anything approaching a check would cause the trees to cast all the best fruit. As Figs in pots or internal borders make very quick growth, see that stopping, thinning, and tying receive regular attention, and carefully guard against getting the young shoots crowded, as it is simply impossible that closely-shaded fruit can have colour or flavour, and a flavourless Fig is the most insipid fruit imaginable. Trained trees in succession houses will require mulching with good manure and liberal watering. Ventilate freely through the early part of the day to keep the young growths short-jointed and fruitful. Thin out the spurs and tie in leading shoots where there is room for extension. Trees in late houses may be pruned and tied in to the trellis, as there is now little danger of damage from frost, but unless the structure is supplied with hot-water

pipes it will be well to retard for the present by ventilating pretty freely on all suitable occasions.

Strawberries.—As ripe fruit is gathered let old plants be destroyed or removed quite away from the houses, and thoroughly cleanse the shelves before they are again occupied with the succeeding batch. Where exposed shelves in vine-ries and Peach houses are occupied with plants in various stages of growth incessant syringing and watering will be needful if they are to be removed without leaving a legacy of red spider behind them for which a heavy price will have to be paid before the end of the season. Good forced Strawberries are always a great acquisition to the dessert; but it is not known to every employer, who is told he may grow everything in two or three small houses, that his tasteless Strawberries are often the cause of his Grapes remaining red and his Peaches ripening prematurely, when a properly constructed house would give comfort and satisfaction to employer and employed. Where proper arrangements do not exist a long season of ripe fruit may be secured by allowing a quantity of plants to set, swell, and ripen if need be, in the pits in which they are wintered, and by planting north borders with some of the best late kinds, including Oxonian, Elton, and Frogmore Late Pine. Where British Queen is grown for coming in through May and June, remove all weak trusses and blooms, and fertilise the finest. Keep the plants near the glass with plenty of air; tie the fruit to sticks when set; feed and syringe well. In low, damp gardens, or imperfectly ventilated pits and houses, some kinds, notably President, Paxton, and Napier, are subject to mildew, which soon spoils the fruit. The best remedy is good cultivation, abundant ventilation, and frequent syringing with clear sulphur water. Forced plants of Vicomtesse Héricart de Thury will require protection from frost until they are sufficiently hardened for planting out. If placed on a west border they will sometimes give a few dishes of fruit after late kinds on north borders are over.

Cucumbers.—If old plants cannot be dispensed with, thoroughly renovate the beds by forking out as much of the sour soil as can be taken away without injuring the roots, and replace with good rich turf and lime rubble. If worms have got into the pots or beds this operation will offer a favourable opportunity to apply lime water for their destruction, as Cucumbers cannot succeed where the soil is exhausted by these pests. Woodlice, very often the cause of canker at the surface of the soil, may also be greatly reduced by the application of boiling water, as they beat a hasty escape to the edges of the pits for temporary shelter. Continue to cut the plants over until all the old foliage is renewed, then train thinly and keep the foliage clean by syringing with warm soft water, light cropping, and early closing with solar heat and moisture. If it is needed, spring-sown plants may now be allowed to carry a few fruit; but light cropping is imperative. Ventilate freely through the early part of the day to keep the foliage firm and healthy, and avoid shading as much as possible, or altogether where the fruit is not affected by the sun. In light houses the fruit of Telegraph is very liable to morning scalding; but a thin shade for a short time until the fruit is dry, and early ventilation will always correct this evil.

Manure beds.—Although plants in frames have had a dry, mild time, linings will now require regular renovation to maintain a steady minimum of 70°, and good dry covering must not be neglected. Add a little fresh soil as the roots protrude, peg down the young shoots, train thinly, and rub off all male blossoms up to the time their services are needed. Be guided by the weather in the application of water; if bright and fine and the heat is strong, overhead watering about 2.30 p.m. will do good, but for the present the wetting of the foliage must be conducted with great caution.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

DOUBTLESS many will have Snow's Broccoli sown on the plea that second sowings form a good succession, but this is a mistaken idea. If this Broccoli is sown just now, or any time before this, it grows quite out of all character—becomes large, soft, and succulent, and the first sharp frost prostrates the foliage, leaving the heart unprotected. If sown the first week in May it will be fit for cutting the first week in November, and the plants will be close to the ground and have much the same appearance as Walcheren Broccoli. This I have proved for three years running. Onions, Carrots, and a few Turnips may now be sown. We are at present briskly employed in planting our main crop of late Potatoes, consisting of Beauty of Hebron, Schoolmaster, and Paterson's Victoria chiefly. The Champion (but for that objectionable deep eye) would be largely planted here. I consider this variety, so far as flavour goes, excellent. Early plants of Celery will now be ready to prick out. A slight hotbed is the best place for them, but they will do well in boxes under glass. Early Cauliflower will also now require attention in the way of pricking out, in order to obtain good plants for the second batch of this indispensable vegetable. Onions may be sown; the two varieties which we grow are White Spanish and Jax's Long-keeping; the latter we are now supplying firm, and not shot in the least. The main crop of Carrots may also be sown. Sweet Basil, a really useful herb, should be potted and grown in Cucumber frames for use green; all kinds of herbs may now be sown under glass.

GARDEN STRUCTURES.

HOTHOUSE FURNACES.

THE subject referred to by "Peregrine" (p. 109) as to boilers and firebrick furnaces, and which "A. D." (p. 158) thinks needs careful discussion, is interesting, but I do not agree that "Peregrine's" views cannot be controverted. To begin with, the difference is lost sight of between hot-air heating, getting up steam, and heating by the circulation of hot water, and I think that facts are opposed to the economy of a furnace composed of fire-clay for heating a boiler attached to hot-water pipes. Though the worst place for a fire may be one wholly surrounded by cold iron when first lighted, the difference is so slight that it is not observable in the getting up of heat, unless it be for the supply of hot air as distinct from hot water. What is the object of the fire? If in a kitchen range it is only partially to heat by radiation, as for roasting, &c., but principally to heat the boiler and ovens, which must of necessity be made of iron, as that conducts the heat where wanted most quickly. Line the back and sides with fire clay and you may increase the heat radiated in front a degree or two, though it will mostly ascend up the chimney; but how much longer will it take, or how much more fuel will you require, to heat your ovens and boiler? When the iron is once warm and there is a proper supply of air, the burning of the fire is just as brisk as if of brick. In the case of a sitting-room fire the back and sides are better of fireclay, because the iron will absorb the heat more readily and pass it into the space behind, where it is not wanted, unless there is a special arrangement, now often carried out, for conducting that heated air into the room, but I see no perceptible difference in the burning with either, and I have watched both methods for very many hours.

In the circulation of hot water for almost any purpose quickness is the first desideratum, and 1000 ft. of pipes could be heated during the time the fire was being got up in the multiple stage furnace. To make a firebrick box or well and put a boiler above it to heat it quickly is about as reasonable as it would be for a smith to hold the iron he wants to forge over the fire and expect it to get red-hot. It has been admitted for a long time, and proved to be right, that the quickest and most powerful boiler is that which absorbs the most direct heat from the fire, and this is the

secret of the great power of many of the upright tubulars and of the coil, as recently reported by "K. B.," but the waste of fuel with these is owing to the very fact of there being so much brickwork about them to absorb the heat, and ultimately conduct it somewhere outside where it is of no use. I readily admit that if the outer setting of these boilers was iron there would be more waste; but make that iron into a water jacket, and you get all your heat utilised, except what must of necessity pass up the chimney. I have proved this by repeated experiments with copper models and gas for fuel.

The statement of M. Perret, given by "A. D.," that if there was a horizontal boiler on the top of the furnace it would be a great success, proves only that there is an enormous heat at present lost from the uppermost brick casing; but if the four stages of fire clay were constructed with 2-in. tubes passing through them about 4 in. to 6 in. apart, there would be no lower temperature of hot air above for the special purposes required, and there could be a quantity of piping heated elsewhere which would give a large amount of heat from its surface. Boilers or circulators have been constructed on this principle, which is *par excellence* that of the gridiron; but where does the surplus heat go to? If you adopt the hot-air flue as an adjunct to your hot-water pipes, then you have a means of utilising this immense heat before it gets to the chimney.

With a properly constructed boiler and furnace there should be no waste of fire heat. I have seen a boiler with water bars lately heating 2000 ft. of pipe with only 18 cwt. of fuel (mostly rubbishy coke breeze) per week, in which the outer brickwork and chimney are scarcely warmed, though the fire is burning continuously. I am now heating a separate set of pipes, with the heat usually absorbed by the brick setting of a saddle boiler, having substituted a water jacket or outer saddle for the usual fire bricks, thus doing double duty with the same fuel, and but little extra fire cost.

Highgate Road.

B. W. WARHURST.

—Having a horizontal tubular boiler set over a fire-place constructed of fire-brick, similar to what is alluded to in THE GARDEN (p. 158), I venture to give an opinion upon it, which is that I wish it was somewhere else. The so-called boiler (if it is deserving of the name) that I have here is, I believe, 4 ft. long, and has a double row of horizontal tubes. It is a capital fuel consumer, and will burn almost any refuse, but what work does it do? It is required to heat rather more than 300 ft. of 4-in. pipe in two pits and one small house, which it will do only by constant attention with the poker and fire-shovel, and it consumes about twice as much fuel as a 3-ft. saddle boiler would do, and the latter would do the work easily, and with little attention.—W. SIMPSON, Eastwood.

NURSERYMEN'S PLANT HOUSES.

NOTWITHSTANDING the excellent description of Mr. Cannell's houses given by "A. D." (p. 128), he has not proved that I was wrong in advocating bottom ventilation simply because certain houses at Swanley possess no side ventilators, and plants thrive in such houses. There may be scores of houses in which it is perfectly immaterial where or how the air comes in or goes out, or whether the fresh external air is heated before it strikes the plants or not. For the sake, however, of those who may be misled by "A. D.'s" remarks, and for the sake of a discussion, I will try to put the case from a purely scientific standpoint. We will presume it is very cold weather; a hot-water apparatus can heat the air and objects inside a house irrespective of ventilation, and without being placed near the ventilators at all; but in order that the system of heating and ventilation in a hothouse may be as perfect as possible, there should be an arrangement so that if necessary the fresh external air can be brought into the house warmed before it reaches the plants, fulfil its duties, and then be sent out of the house. Further, these operations should each and all be under perfect control. To do this an inlet as well

as an outlet is necessary. How can a system of ventilation be called perfect which allows only one aperture for outlet as well as inlet, which allows that aperture to extend parallel with and along the whole length of a rafter, and compels the possibly intensely cold air to touch the foliage without first having its temperature raised?

F. A. FAWKES.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific committee.—Dr. M. T. Masters in the chair. Agglomerated Acon. cups.—Dr. Masters reported on the specimens exhibited at the previous meeting, and found that the apex of the shoot had been attacked by some insect, causing the unusual appearance and arrest of the proper development of the flowers. Australian fungi.

—Mr. W. G. Smith exhibited dried specimens and drawings of Grasses attacked by a fungus, from Sussex and especially Kent, probably new to Britain. It was only known a little more than two years ago. It appears to attack species of *Festuca* chiefly, and is most abundant on sandy soils and not on clay. It only attacks the older Grass, and appears in September, lasting till January. It has the appearance of fine, short tufts of minute crimson or scarlet seaweed glueing the blades together. The Rev. M. J. Berkeley described and figured it amongst Australian fungi in the *Journal of the Lin. Soc.*, 1873 (Vol. XIII., p. 175), and named it *Isaria fuiciformis*. Dr. Cooke now regards it as British. The microscopic structure consists of masses of cells of larger growth towards the base and smaller towards the extremities, which end in forming conidia. It is said to cause the death of animals browsing upon the Grass infested with it, as two cows died in September, 1880, and their lungs were found covered with a fungus resembling that which attacks the throat in some cases of diphtheria. Two rabbits which were fed on Grass attacked by it died. It may be observed that several species of *Isaria* are parasitic on dead and living animals. The specimens and some of the above details were received from the Rev. C. W. Shepherd, of Trottscliffe Rectory, Maidstone. Disease of *Thujas*.—Mr. Smith also exhibited specimens of *T. compacta* attacked by the Australian fungus named *Capnodium australe* by Dr. Montague. *T. aurea* and *elegantissima*, as well as *compacta*, are sometimes covered by the species in autumn, and in the following spring they are found to be quite dead, the roots as well as the top. This fungus was described by Berkeley in the *Journal of the Royal Horticultural Society*, Vol. IV., pp. 253 and 259, as surrounding the branches of *Conifers* from the Swan River. *Rhododendrons*.—Mr. Mangles exhibited several true species from Sikkim—*R. argenteum*, a magnificent truss of large white flowers on radiating foliage; *R. Hookeri*, nearly resembling *R. Thomsoni*, remarkable for the scales on the ribs on the underside of the leaf; *R. ciliatum*, with white flowers. He observed that, as originally figured in Hooker's "Himalayan *Rhododendrons*," it is coloured pink in error. This specimen was received from Mr. Anderson-Henry. *R. fulgens*, which grows at great elevations on those mountains; *R. arboreum*, from Nepal; and *R. davuricum*, from N.E. Siberia. A vote of thanks was unanimously given to Mr. Mangles for his interesting exhibition. *Fritillaria obliqua*, &c.—Several plants were exhibited by Mr. Elwes, the above mentioned being nearly black in colour, and is supposed to come from Prussia. *Leucojum aestivum* var. from S. France, which flowers two months earlier than the common form; *Chionodoxa* var., self-sown seeds of which blossom in two years. Mr. Elwes remarked that its habit has changed under cultivation, inasmuch as it comes up rapidly and blossoms as soon as the snow is off in Asia Minor, whereas here its progress is delayed to a much longer period, and it is getting later in this respect every year. *Korolkowia Sowerzovi* sport, a remarkably green-flowered branch from what is normally a purple-flowering

plant. *Tulipa Greigi*.—Mr. Elwes remarked how the colour appears to be fading under cultivation, though Mr. G. F. Wilson had not experienced it. *Gastero fornicatum*.—Specimens of this curious fungus were exhibited by Mr. Grote. Evils of root pruning.—Dr. Masters exhibited roots of *Pavia* which had been cut for early removal, but which developed a hypertrophied condition of the vortex as the result. *Conifers*.—He also exhibited specimens of cones, &c., from trees grown by Mr. Veitch. *Abies (Picea) grandis*, *Pinus tuberculata*, the scales being unequally developed on opposite sides of the cone. The seeds are believed not to escape until after forest fires have destroyed the trees. They hang on the trees for many generations, even for thirty years. *Picea amabilis*, the true form, much resembling *P. Nordmanniana*, remarkable for its scent. *Thuja grandis* (Lobbi), often called *Libocedrus decurrens*. *Tsuga Pattoniana*, the Hemlock Spruce. *Orchid leaves diseased*.—He also showed some leaves from Mr. Low, of Clapton, but the nature of the disease could not be determined. *Welwitschia seedling*.—He exhibited a dried specimen of a germinating *W. mirabilis*, showing the two cotyledons (deciduous) and the two next pair of (persistent) leaves. Various diseased plants.—The Rev. G. Henslow read a communication from Lord Romney, of Gayton Hall, near Lynn, describing serious injury to many plants, *Carnations*, *Ivy*, &c., apparently due to fungi, nematoid worms, &c. They were referred to Mr. W. G. Smith for examination and report. Plants exhibited.—*Galeandra nivalis*, a remarkable *Orchid* with spurs resembling *Impatiens*, by Sir T. Lawrence; *Platycladus glossopteron* and *Spathoglottis Lobbi*, two interesting *Orchids*, for which botanical certificates were awarded to Messrs. Veitch; *Tulipa biflora*, bearing star-like flowers, by Mr. F. G. Wilson.

LAW.

Royal Horticultural Society in the Court of Appeal.—Judgment was given on Wednesday last in the appeal from the dismissal by Mr. Justice Fry, in June last, of an action brought by the plaintiffs (the commissioners for the exhibition of 1881) to recover possession of the Horticultural Gardens at South Kensington, the claim being founded on a proviso for re-entry contained in an agreement, dated 24th July, 1860, by which the plaintiffs agreed to grant a lease of the gardens to the defendant society. The action was originally brought against the society alone, but, inasmuch as the holders of debentures issued by the society claimed to be interested in the matter, one of the debenture holders was afterwards added as a defendant, to represent that class. The Master of the Rolls and Lords Justices Cotton and Lindley, of which the court consisted, reversed the judgment of Mr. Justice Fry. Judgment was accordingly given that the society should give up possession of the gardens to the commissioners, and that the defendants should pay the costs of the action and of the appeal; but, with the consent of the plaintiffs, the society are to be allowed to retain possession for four months. As was pointed out by Lords Justices Cotton and Lindley, the result of the decision to the debenture holders is that they absolutely lose their money without remedy against anyone.

NICOTIANA AFFINIS.

EVERYONE who has seen this lovely flower must be enchanted with it, as I was. In order to circulate it far and wide, by your kindness, in July last I offered to send a "pinch" of seed to any who cared to ask for it, and you may be sure the applications were not few. I supplied them all, for as my stock in hand would not last out I sent to the same source, the south of France, for a further quantity. I have now found out that the second consignment was either adulterated with common Tobacco seed, or was altogether spurious. Will you allow me to take this opportunity to inform all those who received their seed from this second supply that their plants will most likely be the

common *Nicotiana virginica*, bearing dull red blooms, and not the glorious *N. affinis* with long white tubular flowers of exquisite fragrance. Those who wrote first will have secured the right sort, for the same packet of seed produced the plants exhibited at the Regent's Park Evening Fête, and, indeed, those which I have cultivated myself. I regret exceedingly the disappointment which so many must feel after growing their plants all the winter, but it is necessary for the sake of my eulogium on the flower that this explanation should be made. W. H. CULLINGFORD.

7, Phillimore Gardens, Kensington, W.

Many plants possess such highly decorative qualities as the *Tobaccos*. They not only make excellent bedding plants, but for indoor decoration they are invaluable. Grown on in frames during the autumn and introduced into warmth early in November, they will be found most useful, either for conservatory decoration or for bouquets, a few plants of them being sufficient to furnish a large house with their delicious perfume. In the Chad Valley Nurseries a batch of *N. suaveolens* (undulata) has been flowering profusely during the past two months, and has been much admired. May I suggest planting this species in company with *Lobelia cardinalis* and *L. Queen Victoria*, with which it would form a striking contrast?—E. JENKINS.

Shrub garden by the sea.—I want to make a small shrub garden with beds of green and various forms of variegated-leaved shrubby plants, but as the situation, though on the south coast, is a very exposed one, within 500 yds. of the sea, and protected by a wall only 2 ft. 6 in. in height, if any of your readers who have had experience of seaside gardening would kindly give me a few hints as to the plants, mainly evergreen, that would thrive in such a situation, I should feel very grateful.—R. M.

The late Mr. Toward.—The Queen has just caused a memorial stone to be placed over the grave of the late Mr. Andrew Toward in Whittingham Churchyard. It bears the following inscription, written by Her Majesty: "To the memory of Andrew Toward, for twenty-nine years the faithful land steward of Queen Victoria and the Prince Consort, by whom he was much esteemed. Born 21st December, 1795; died 7th May, 1881."

Grafting wax.—Would some of your readers recommend me a good receipt for grafting wax, as the wax which I have made from sealing-wax, tallow, and bees' wax has not turned out a success?—G. B.

Whitlans.—The seedling *Auricula* you send is a good one and well worth perpetuating, particularly if of a hardy and robust constitution; good dark flowers of large size and fine form are much to be desired.

Wintering Broccoli.—Page 188, eleventh line from top, for *inner leaves* read *under leaves*.

Names of plants.—*Cahore*.—1, *Abutilon vexillarium*; 2, *Hibbertia Rheedii*; 4, *Euphorbia splendens*.—*H. C. H.*—*Rhododendron dauricum*.—*A. Collins*.—*Dendrobium nobile caryculense*.—*Sylvestris*.—1, *Thuja occidentalis*; 2, *Biota orientalis*; 3, a slightly variegated form of *Juniperus Sabina tamariscifolia*.—*W. W.*—1, *Adiantum macrophyllum*; 2, *Conoclinium lanthium*; 3, send when in flower. —*J. L. E.*—*Asplenium Adiantum-nigrum*.—*G. E.*—1, *Narcissus moschatius*; 2, *N. Pseudo-Narcissus minor*.—*W. E.*—1, apparently *Oncidium spheculatum*; 2, *Oncotoglossum cirrhosum*; 3, *O. Zegerianum*.—*Dryadum*.—1, *Eupatorium Wendlandii*; 2, *Forssythia suspensa*.—*J. C. Tallock*.—1, *Narcissus Pseudo-Narcissus flore-pleno*; 2, *Sulphur Phoenix*; 3, *Orange Phoenix* (both double forms of *N. incomparabilis*); 4, *N. bicolor*; 5, *N. bicolor* Horsfield.

COMMUNICATIONS RECEIVED.

W. T. J. D. J. M. M. & Co. H. C. H. A. E. C. S. & Son. G. P. J. D. G. S. S. G. E. S. G. H. E. J. M. C. M. O. R. P. & Co. W. H. J. C. G. W. H. E. W. T. J. S. W. W. J. C. G. J. P. G. J. W. S. A. D. J. R. A. D. W. H. D. W. C. R. N. & Son. G. C. F. C. & Co. P. D. T. F. E. B. F. M. S. R. H. A. W. H. W. T. W. W. St. E. J. S. W. W. C. Sylvestris. —D. T. P. G. B.

No. 541. SATURDAY, APRIL 1, 1882. Vol. XXI.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

THE FRUIT CROPS OF 1882.

It is as yet somewhat premature to write of these, for it has snowed to-day (March 21), and the air has the true ring of March harshness about it for the first time this year. But, weather permitting, the fruit buds are now sufficiently developed to reveal their number and size. Judging the coming crops by these tolerably sure tests, there can be no doubt that Peaches, Nectarines, Apricots, Plums, and Nuts are to be the chief crops of the coming season. Of course, most or all of these fair prospects may be blighted. But, if not, the bloom is so plentiful, healthy, and clean, that the probability is there will be an abundance of these fruits. On the other hand, Apples and Pears cannot be a heavy crop, be the weather what it may. The heavy crops of these fruits last year have, as usual, told against the crop of this. This seems to be the case even where considerable thinning was resorted to, and, of course, it is still more apparent where these fruits were left unthinned. The heaviest crop of the season will probably be Plums. All sorts, including Gages—and the latter are most erratic and capricious here—are studied thickly with blossom. Apricots, which have rested to a greater or lesser extent for several seasons, are now white with blossom, and Peaches colour the walls with their prodigality of bloom. We have not protected till to-day, but the frequent snow showers and taste of true March weather in the wind have caused us to rush on our screen of boughs over the trees now in full bloom. Should the weather return to its unprecedented mildness, we shall soon whip our boughs off again. But in March or April snow or hail storms by day almost invariably portend the coming of frost at night; and a stinging frost soon after such forcing weather must needs prove most injurious, if not fatal, to Peaches and Apricots in full bloom; hence the prudence of being prompt with our protection. It is of almost equal importance to be equally prompt in its removal. Plums are not yet in flower, and Pears do not seem abnormally early. As for Apples, the bloom is not only scarce, but it seems later than usual. Of course there may be many exceptions; but I believe the above estimate of the fruit prospects of this year and its present condition will be confirmed by experience. D. T. FISH.

STANDARD PEACH TREES.

NOTWITHSTANDING all that may be said in favour of growing Peach trees as standards under glass, I am prepared to assert, after not a few years' experience, that they cannot be so grown to produce fruit with the same amount of flavour as those on walls or trellises. The reason is obvious: the fruits cannot, under any circumstances, get the same amount of sun and air when grown on standards as they do on trellises or walls, and as a consequence the flavour is inferior. I do not say this because I am in any way prejudiced against standards under glass; on the contrary, I know that they are more easily managed than any other form in which Peaches can be grown. As standards they are less liable to be injured by green or black fly, simply because they can be fumigated much more readily than when trained on walls or tied to trellises. They also make stronger growth, and they produce a greater number of fruits than trained trees, but these advantages are all gained at the expense of flavour. The cost of houses for standards, too, must be considerably more than that of lean-to's, the form so generally used. If high flavoured fruit is the point aimed at, standards would be a re-

gressive step. I grant that the appearance of a well constructed house planted with standards is altogether more pleasing than when the trees are stilly trained, but the question of flavour seems to me to be of so much importance, that it is only right that the subject in all its bearings should be laid before the public. According to my experience, Nectarines are not so well suited for standard trees as Peaches. As to size, I have had tall standards and short ones, and I never found that the fruit from the tall trees was better than that from the short ones. J. C. C.

Good Apples and handsome trees.—

Replying to a question as to the six varieties of Apples for orchards that make the finest trees, Mr. Groom names, Hambleton Deux Ans (or Graham's Russet), Wellington, and Tower of Glamis three kitchen sorts, and Golden Knob, Devonshire Quarrenden, and Blenheim Orange dessert kinds. Summer is an excellent Apple in every respect; in fact, one of the best of late Apples, but we have not such large trees of it as of the preceding. It is a safe sort to add to any list where late, good Apples are required.

Does Pine growing pay? (see p. 108).—

From many years' experience I am fully convinced that Pine growing does pay when properly managed, especially when grown in pits with nothing but a bed of leaves for bottom heat. This method I have practised most successfully for over forty years, and during that period I have always had a good supply of fine fruit, and with little trouble compared with that involved in the production of other indoor fruits I have had under my charge. Will any reader of THE GARDEN kindly tell me in what way the growth of Pines is more expensive than that of other fruits grown under glass?—D.

Pot Strawberries are doing very indifferently here this season. Out of 300 of Garibaldi put into heat on February 28 101 turned out "blind," producing only small, cankered foliage. Keen's Seedling and President are looking better, but still inferior to what they used to be, Strawberries, as a rule, succeeding very well in this locality. The only reason we can assign for their failure this year is the wet and sunless autumn which we had, preventing the crowns from getting properly matured. Several in this district are complaining of their failing in the same manner.—W. LITTLE, *Inverhip.*

Mealy bug on Vines.—It is my misfortune to have several vineries infested with mealy bug. I have tried scraping the Vines, dressing them with Gishurst, and even washing them with paraffin, scraping walls, and taking out 3 in. of soil, and then whitewashing the walls with hot lime, but the enemy is still there. I have now two houses, the Vines in which will soon be in bloom. Can anyone give me a safe recipe for destroying mealy bug by syringing, as I am too short-handed to employ any other means? I may add I have tried Fir tree oil, but I found it made strong enough to kill the bug, it also killed the young shoots and foliage. Of course, I need not say how tender they are, especially after this sunless weather.—C. B. S.

Low night temperatures for Vines.

As far as my experience goes, low night temperatures are beneficial to Vines. I think we all agree that growth is more rapid the higher the temperature, and that in the dark growth is weaker, and has less solidity than that made in the light. A few years ago in spring—as near as possible when the days and nights were equal—I measured the day growth and night growth of strong, young Vines over a period of four days, and found that the night growth exceeded the day growth by $1\frac{1}{2}$ in. Measurements were taken at 6 a.m. and 6 p.m. The night temperature would be about 65°; the days were partly bright and partly dull. This being the case, may we not with advantage reduce the temperature to a point which will induce shorter growth? I find that a

night temperature of from 55° to 60° will not hurt Black Hamburgs. Muscats we like to keep a little warmer than Black Hamburgs, and we keep all sorts a little higher when in flower.—CALEDONIAN.

Muscats and low temperature.—Some would lead us to believe that it is impossible to grow the Muscat of Alexandria with success in the same temperature as that used in the early forcing of the Black Hamburg, but I find that that can be done. I, however, prefer a temperature of, say, from 60° to 63° at night while the Muscats are in flower, with an increase of from 5° to 8° in the daytime, according to the state of the weather. Nevertheless, I do not confine myself to any particular degree of heat, and especially in severe weather. Although the night temperature just named may be right as a rule, yet Muscats can be grown in much less heat. I have even grown them successfully in a temperature as low as 43° at night. I have a small span-roofed vinery running north and south. It is 14 ft. in width and 10 ft. in height from the centre path. On the west side are Muscats, and on the east Gros Colmar, and the only artificial heat applied is what can be had from a 4-in. flow-and-return pipe, that runs close along the west wall to the propagating and forcing pits; therefore neither the ends nor the east side of the house receive much artificial heat. Last spring, when the Muscats were in flower, the night temperature often fell as low as 42°, and on several occasions 2° lower, but, notwithstanding this hard treatment, they set well, and I had a very fine crop of well-finished bunches, while those of the Gros Colmar varied from 2 lbs. to 5 lbs. in weight, and the berries were well coloured; indeed, my success surprised many.—G. WILLIAMS.

Late market Apples.—The complaint made by "W. J." as to the difficulty experienced now in getting good Apples is a natural and reasonable one, but the growers are hardly to blame in the matter, simply because it will not answer their purpose to keep Apples till March. There are few kinds of Apples of which more are grown than of the Wellington, which is one of the best keeping kinds we have, and, if carefully stored, fruit of it should be in good condition now. It is not that there is any deficiency in the quantity of late kinds grown so much as that few care to hold them over. The risk would be considerable, and even the greatly enhanced price that could be obtained for good fruit now would barely pay for the trouble and labour involved. Market growers are naturally more concerned for the day present than for the day months hence. Thus they grow largely sorts that turn in early and abundantly, and the trees, being relieved of their crops some time before they are fully matured, have far less strain upon them than would be the case were the crop to hang and ripen for spring. 6s. per bushel, ready money, is more acceptable than 10s. per bushel several months later. The money may in the market business be turned over three or four times ere the kept Apples could be marketed. The Wellington, indeed, is grown so largely because it is a late-keeping kind, and because it gives a good succession and almost always a good crop, which is run into market as soon as gathered; the sooner the better. Perhaps market Apples might be held over with greater security were more care exercised in their gathering and transit. As a rule they are as roughly used as Potatoes; though the hard knocks do not appear to make any injurious impression at the moment, they tell a sad tale a month later. Dealers who would invest largely in late Apples for keeping should purchase the standing crop, gather the fruit with the greatest care, transport it in baskets lined with hay, and put it into cool, airy, even temperatured stores to keep. If all this trouble were taken it is possible that the enhanced price now obtainable would make the speculation pay.—A. D.

Outdoor Vine in leaf.—I have a Black Cluster Vine against a wall in the open air, the top shoots of which were in absolute green leaf in the middle of March. It has had no protection whatever. Is not the middle of May more like the usual time for outdoor Vines to produce leaves than March?—S. J. J., *Melplash, Dorset.*

EDITOR'S TABLE.

CENTROPOGON LUCYANUS.—Mr. Crook sends from Farnborough Grange some excellent sprays of this beautiful plant to show how continuously it flowers, his plants having been in bloom since October last. The fine bright carmine flowers of this plant make it very attractive.

VANDA PARISHI.—This, from Mr. Peacock, Sudbury House, Hammersmith, is a handsome Orchid, with firm waxy flowers more than 1 in. across and a rich amethyst lip; centre white, encircled by a ring of violet-purple, and merging towards the edges of the sepals in chocolate-brown, a combination of colours both remarkable and effective.

ODONTOGLOSSUM POLYXANTHUM.—Mr. Peacock likewise sends this rare Orchid, one of the handsomest of the section in which yellow and brown colours predominate. The flowers sent represent one of the best forms, the ground colour being a bright canary yellow, and the blotches very distinct. With it comes a remarkably fine form of *O. cirrhosum*, one of the best of all cool Orchids.

RANUNCULUS ANEMONOIDES.—A great novelty comes from Messrs. Backhouse in the shape of a beautiful alpine Crowfoot, with delicate lilac flowers, purple buds, and neat, much cut foliage. It seems a very free flowerer, and well established as a group in the rock garden, it must be a beautiful alpine plant. Whether it will develop into a strong and showy plant, such as one could embellish the border with, we do not yet know.

PANSIES, large, handsome, and numerous, come from Newry, which seems to be a good climate for many plants. The cool north is the happiest home of the Pansy. When shall we see the species from which those lovely races arose in cultivation? Has anyone the true *Viola altaica* in their gardens? There is nothing better in the warm south than the Pansy of the Scotch and northern gardens.

DAISY DALYKILBEG.—A new salmon-coloured, full double, and distinct sort. What a wonderful lot of varieties our pretty little Daisy is broken into—none so pretty, perhaps, in form as the old plant itself, but for garden purposes having great merits. The present form is really a good salmon-coloured kind, the centre too open for some, but this may not be always constant. From Messrs. Rodger, McClelland, of Newry.

GEUM COCCINEUM FL.-PL. has fairly begun its season's work, and flowers and buds are coming in rapidly. This faithful plant flowers a very long time, and is always bright and pretty. The flower sent to us now in the last days of March is 1½ in. across. It comes from the Newry Nurseries, whence also come charming double deep rose Primroses with the stem pushed up like that of the Oxlip or Polyanthus.

SKIMMIA RUBELLA.—This is now completely studded with conical heads of white flowers deliciously perfumed—a delicately scented bush, with creamy white flowers and yellow stamens. These *Skimmias* are excellent evergreens, most noticed hitherto for their bright fruit in autumn, but not less valuable for their fragrant heads of flowers in spring and their good large evergreen foliage—often, by the way, slightly blanched or browned, as if our climate did not quite meet their wants in some respects. *S. rubella* comes

to us from Messrs. Rodger, McClelland, of Newry.

MENZIESIA EMPETRIFORMIS.—This bears delightful cushions of charming rose-coloured Heath-like blossoms, creeps on the ground, and only attains a height of 6 in. or so. A most beautiful little bush with many large rosy bells. It is a sturdy, hardy "alpine," but wants the pure air of the Mourne Mountains or some other hilly and moist district to give it to us in its best condition. We seldom see it in its best form about London, but about Edinburgh and the north of Ireland it seems to be perfectly at home. From Messrs. Rodger, McClelland.

PERNETTYA CILIARIS.—I send this, which, as you will see, is a most profuse blooming and beautiful white flowered shrub, apparently quite hardy anywhere, and, being a spring bloomer, doubly valuable.—T. SMITH. [A bonny little shrub with a foam of pretty little Lily-of-the-Valley-like bells, narrow at the mouth. They are most profusely borne, have a delicate scent, and are of a quite clear, transparent, good white. Well placed on a rocky bank, such a shrub would be valuable for its flowers alone, and, no doubt, they are followed by bright berries in autumn.]

THE HOOP-PETTICOAT NARCISSUS comes in very good condition from Mr. Crook, of Farnborough Grange. We should like to see this plant well grown in our warm soils in many districts, and hope many will try it. He also sends various fine double Primroses. These, we are glad to see, are more common now in Covent Garden, where any one can buy plants in plenty every morning. He also forwards to us a large and handsome double yellow Wallflower. The old double yellow Wallflowers are worth looking up for dry banks and warm borders which would favour their early bloom, not that they are in any way tender.

BEAUTIFUL NARCISSI.—Our common Daffodils are as beautiful as any, but it is well that we have so many charming species less common and no less beautiful, and also some of the newer and better hybrids that have lately been added to our gardens. The form of most of them is so good, and they prolong the season of flowering in a spell of bad weather. An unknown correspondent sends a batch of these beautiful hybrids and of the rarer kinds, which are very finely grown, and striking in the great diversity of form and good colour which they show. Their names are as follows: *Incomparabilis sulphureus minor*, *i. Leedsii*, *i. Leedsii Gem*, *i. grandiflorus*, *moschatum*, *bicolor Horsfieldi*, *odorus heminalis*, *Burbridgei minor*, *rugilobus*, *Macleanii*, *albidus Leedsii*.

EPIGEA REPENS.—This interesting plant comes to us from two sources—Mr. G. F. Wilson, in Surrey, and Mr. George Muirhead, near Berwick-on-Tweed. It is a beautiful and fragrant little shrublet, and, we suppose, is flowering earlier with us than it does in New England, where it is such a favourite flower. It has a most grateful fragrance. Mr. Muirhead's specimens look very fresh and healthy, and they are the freshest and greenest we have seen in England. Mr. Wilson's are very vigorous and good, and larger. It would be interesting to know in what position Mr. Muirhead's are grown. Mr. Wilson's have the shelter and shade of a wood, a position they are accustomed to at home, where they may be seen everywhere in the shade of thin Pine woods. The woods are sometimes almost white with their flowers, at

least so says a friend of ours who has seen them in various States.

SEEDLING HELLEBORES.—From Messrs. Froebel come a series of Hellebore seedlings, raised in their nursery at Zurich. The majority of them belong to the dark flowered group, chiefly to *H. colchicus*, the type of which has fine, deep, claret, cup-shaped blossoms. The varieties of *H. colchicus* sent are named respectively *coccineus*, *deep rosy purple*; *farinosus*, *dark lilv purple*; *roseus*, *deep rose purple*; *giganteus* grows 2 ft. high; *punctatus*, vinous purple and copiously spotted. With these come two seedlings of *H. Boconii*, together with the type. One has green flowers veined with purple, the other yellowish green flowers. These Hellebores are noble and distinct flowers, and, as proved by this fine series, at home over a large area of the northern world.

FLOWER GARDEN.

MYOSOTIS DISSITIFLORA SPLENDENS.

Is the variety splendens better than the type? I think not. It is larger—nearly as large again—but it is not brighter or more compact. Both are extremely beautiful and useful plants; but I still think *M. dissitiflora* the best. I have grown the variety called splendens for several years, and received it, I believe, through the courtesy of Mr. Atkins, of Painswick. Its habit with me is taller and stronger than that of *dissitiflora*, and, as a rule, it blooms later. It is also less flushed with pink at the opening than the true *dissitiflora*, and loses the pink sooner. The colour is lighter, and the yellow eye in the centre of the star so much larger, as to lower the purity of the blue when seen in masses. It is a beautiful companion plant to *dissitiflora*, but it is never likely to supersede it for spring decoration. The peculiarity of the mode of ripening seeds in *dissitiflora*—one at a time, as it were, from the bottom upwards—has very much checked the rapid increase of this charming plant, and has led to sylvatica and other species of *Forget-me-not* being frequently substituted for it. Seldom or never has *M. dissitiflora* been more superbly beautiful than this spring. The mildness of the weather soon converted the pink stage into the loveliest blue, making this beautiful *Forget-me-not* reign without a rival in the spring bed, border, wood-bank, or rockery. Even Violets of the softest shades and sweetest odour and Squills of the richest corulean seem almost common place in the presence of the countless galaxy of blue stars displayed on the green carpet of this matchless *Forget-me-not*.

It is impossible, in fact, to over-estimate the intrinsic beauty and decorative value of this plant. Its cultivation is spreading in all directions. Walk or drive almost where one may in East Anglia, we see it peeping out of pots in the windows of the cottagers, or looking its best in their flower beds or borders, its beauty heightened and glory enhanced by the white sheen of great spreads of white Arabis, and its colour deepened by contrast with the yellow Primrose or golden Auricula. I find, too, that it is rapidly becoming naturalised in our woods, plantations, and shrubberies, has made its home on mossy stones, and established itself on old stone walls. Those who grow this plant by thousands for spring gardening should plant all the old stumps in hedgerows, in sheltered nooks and open spaces in shrubberies and woods, in open spaces among Ferns, Heaths, and Rhododendrons. The old tops, too, scattered about in such places will have a few seeds left, which will vegetate among the debris, and convert many a hidden nook into a very oasis of verdant and corulean beauty. Nor should this prodigality of increase be looked upon as mere waste. The placing of *Forget-me-nots* by hundreds or thousands in hidden places to "blush unseen and waste their sweetness on the desert air." No; loving eyes search for and gaze upon, eager hands will find and gather them there. We have also found in severe winters these hidden reserves invaluable.

The shelter has saved them, while the general stocks in more exposed quarters have perished; and these outlying out-of-the-way masses have often filled many a bed or border, and formed many a charming mass of colour that would otherwise have remained blank and colourless.

D. T. FISII.

SCILLA BIFOLIA.

ACCORDING to "Alpine Flowers" (p. 324) there are the following varieties of *Scilla bifolia*, viz., alba, candida, carnea, compacta, maxima, metallica, rosea, pallida, and precox. Of these Barr & Sugden's catalogue only has three, and Ware's form, but both have *S. bifolia taurica*, which I take to be the same as *S. b. maxima* of the above list. It is, therefore, not easy to obtain all the varieties, and probably they are not now kept separated by any nurseryman. The *Scillas* have been unusually fine this year, and an opportunity has thus been afforded us of comparing the various sorts. It is easy to select precox, which is a small sort, flowering the earliest; *bifolia*, the ordinary type, carries from four to six flowers on its spike, and forms the rank and file; *maxima* is the largest, of course, carrying as many as a score of flowers, and has a pyramidal corymb. Next, the coloured sorts alba, pallida, candida, carnea, and rosea are easily distinguished; and lastly comes metallica, which I cannot make out at all. There is a greater variety in a large mass of *Scilla bifolia* than would at first be supposed, and it is well worth while to go carefully over them before they go out of bloom, and to mark off the sorts by pegs, so that the bulbs can be sorted when the proper time comes. In thus going over my collection I have been able to separate most of the above varieties, and hope thus to grow them apart in the future. I found, however, a good many plants of a more vigorous and larger sort than even the ordinary *maxima*, and with the flowers decidedly double, giving it quite a distinctive appearance, just as a single *Hyacinth* differs from a double one. This sort, which we may call *Scilla bifolia maxima fl.-pl.*, has the stem much branched, each branch carrying a single flower, forming corymbose trusses of from ten to fourteen. The stamens have been thickened, and become slender blue petals, thus making the flower semi-double. It is by far the finest of the *Scilla bifolia* group, and I have no doubt it can be singled out of any large collection. Probably this *Scilla* is as capable of improvement as the *Hyacinth*, and it is well worth special attention.

Didsbury.

BROCKHURST.

Ficaria grandiflora.—I fail to trace in the drawing of this plant (p. 204) an important characteristic of it as grown here, viz., its branched flower-stem. I should not be surprised to learn that one or two stems are so intended to be shown in the cut; still, there would remain the fact that mine is far more distinct, and I may add, my flowers are 5 in. or 6 in. above the foliage. In all other respects, so far as I can judge from the illustration just referred to, the resemblance holds good. The plant is very showy, and lasts a long time in flower—fully a month. I grow it on a bit of rockwork, rather below the ground level, soil moist and light.—J. WOOD, *Kirkstall, Yorks.*

Edraianthus dalmaticus.—J. C. L. (p. 205).—This needs no special treatment; it is quite hardy, and does better planted in a rather dry loam outdoors than kept in a pot. Is "J. C. L." quite sure that his plant was well established before he shifted it into a larger pot? All *Edraianthi* need very careful removal, which can only be successfully done when the plants are young. In the case in question I should say that the roots are decaying; and if so, I would recommend that they be cut back to the healthy parts, the plants being inserted as cuttings would be, and kept in a cool frame dry. Over-watering would kill them.—T. D. H.

Addis's Kingfisher Polyanthus.—On going into the garden of an old Polyanthus grower

in this district to inquire if he had any good Polyanthus, he took me to see his stock. One attracted me very much, and on asking its name, I was informed that it was Addis's Kingfisher. I at once told him that could not be so, when he informed me he bought it from Mr. Geo. Addis, of Wolverhampton, who raised it from seed. He gave 7s. 6d. each for two plants of it some fifteen years ago, and it has been his favourite ever since. In my opinion it answers the descriptions given of it, but if "J. C. F." (p. 145) will communicate with me I will send him a bloom and a leaf for examination. The plants are very poor; having had no attention for years, nevertheless they show that they possess superior qualities.—R. J. NIVEN, *Wellington, Salop.*

Mural gardening.—I have received "The Wild Garden," and am charmed with it. I would like very much to plant or sow some flowers along the face of an old wall I have on my place, but do not know if any of those mentioned in "The Wild Garden" can be planted now or during April. I would be glad to know how that is, and would buy any kind that could be planted at that time and flower in August or during the summer.—C. S. ORDE, *Great Yarmouth.* [Seeds may be sown on the face of an old wall almost at any time when they are ripe, preferring autumn or early spring. Sow now seeds of some well-chosen kinds, and sow in early autumn, too. In dealing with an old wall the best way is to sow seeds. In the case of building a rough stone wall for the purpose, using packed earth in the interstices, plants succeed nearly as well as on the rock garden.—ED.]

Enothera speciosa.—I wish to warn all rockwork planters against this evening Primrose, pretty though it be. A single root which I planted on my rockwork last spring has run half over the surface, coming up in the most unexpected places to the great detriment of many small, delicate plants, and threatening to take entire possession of the fabric. Indeed, I see no way of stopping or getting rid of the intruder except by pulling the rockwork down and rebuilding it. There are also several herbaceous border plants which I have found excessively troublesome in the same way, viz., *Achillea Ptarmica*, *Harpallium rigidum*, and several of the *Enothera*. They run beneath the surface like Couch Grass (*Twitch*), and it is impossible to keep them within bounds. The only remedy seems to be to grow them in large pots plunged in the border.—HENRY BURNBY, *Warendon Rectory, Woburn.*

SHORT NOTES—FLOWER.

Dahlias for exhibition.—I have some good *Dahlia* tubers which have started into growth, and from which I am now taking cuttings. Will any experienced *Dahlia* grower inform me which will give me the finest blooms for exhibition, the cuttings or the old tubers?—J. C.

Seedling Auriculas.—I have some good seedlings from seed sown last July, but not strong enough to flower this summer. What treatment would suit them best till next spring? Should they be much watered during the coming summer?—A. C.

Enothera Fraseri.—Large masses of this just now are quite attractive, the leaf colouration being fully up to, and very similar to, that of the *Alternanthera spatulata*; of course this appearance goes off by and by, but we have had two or three weeks of it already, and the appearance is worth noting.—T. SMITH, *Neurys.*

Saxifraga Stracheyi and ligulata.—The Saxifrage a correspondent mentions as *Saxifraga Stracheyi* is, I believe, *S. ligulata*. *S. Stracheyi* bears blooms of a white colour with a red centre, and has a flush of red on the midrib, whereas *S. ligulata* is, as your correspondent says, of a delicate rose-pink.—H. STUART WORTLEY (Colonel), *Roslyn House, Grove End Road, N.W.*

Sweet Peas.—These should now be sown. They require good rich soil if they are to keep on flowering for any length of time. A trench filled with rotten manure and a drill drawn over it when filled in is a good plan to adopt; and as gathering the flowers prevents seed-bearing, the closer the bloom is gathered the longer and better will they flower.—L. G.

Hepaticas.—Whilst at Mentone some few years ago I had frequent opportunities of noticing the habits of the *Hepatica*, which grows wild on the surrounding mountains. In the first place I observed that it was only to be found on limestone soil (Jurassic); never upon the sandstone spurs of the mountains. In the next place it always courted the shade, and was generally to be met with among thin underwood on rocky ground with an eastern or northern aspect. Lastly, it seemed to choose spots where there was a certain amount of moisture always in the soil, refusing to grow where there was any chance of being scorched by the sun's rays. In this country I never saw the varieties of the *Hepatica* growing so well and looking so thoroughly at home as in the villages near Frome, where the subsoil is the mountain limestone and the rock very near the surface. Huge clumps of *Hepaticas*, 2 ft. and more in diameter, and masses of bloom, have I seen in that neighbourhood; indeed, in one parish they grew like weeds, whilst here, with a heavy loam and a clay subsoil I cannot keep them alive. They invariably disappear after the second year of planting in our borders. H. BURNBY.

Warendon, Woburn.

NOTES FROM DRAYTON-BEAUCHAMP.

I do not think that the yellowish green variety of *Fritillaria Korolkowi* (Korolkowia Sewerzowi) is a deteriorated form, but a permanent variety. I have grown the dark purple form for the last three or four years, and cannot perceive the least diminution in the depth of the colour. Last year Dr. Regel sent me two more bulbs, which I at once planted in the open border. One of them has just bloomed and produced the variety with yellowish green flowers which Mr. Elwes exhibited at a late meeting at South Kensington.

Leucojum pulchellum.—I consider this to be a totally distinct species from *L. aestivum*. It is smaller in all its parts, and invariably flowers several weeks earlier. I found a plant, which appears to me precisely identical with *L. pulchellum*, growing in abundance in sandy ground, close to the sea, in the island of Minorca. M. Rodriguez, the well-known botanist of Port Mahon, says it is a distinct variety, viz., *L. Hernandezi*.

Muscari Elwesi.—This pretty little *Muscari* was sent to me amongst other bulbs by Mr. Elwes whilst he was travelling in Asia Minor some years ago. It is delicate, and does not increase fast. It is the smallest species of *Muscari* I possess now, smaller than *M. microcarpum*, which is a sort of miniature *Szovitzianum*. A still smaller species came to me once through Mr. Elwes from the island of Syria, but I failed to establish it. The lovely little *Muscari ligulatum* opened its sky-blue flowers with me at Christmas. It does not increase, but goes freely to seed. This is the right way to increase all rare bulbs. It requires a little patience, but they most of them bloom the third year.

Tulipa patens (I have only one bulb) has bloomed with me for three successive years. It comes out a month or five weeks before *T. biflora*; this year it was out at the beginning of February. It has a much smaller and paler flower than *biflora*, and is wholly unworthy of cultivation except as a botanical curiosity. It does not increase or go to seed.

Tulipa altaica and *T. Schrenkii*.—These two species are now both in bloom, side by side. I can see no difference whatever between them. They are both a uniform soft rose-red, with a yellow base to each petal. I believe them to be both *T. Schrenkii*, and should be glad to know where I can procure the true *T. altaica*, which, according to Mr. Baker's description, should be yellow, occasionally marked with red.

Tulipa violacea, which came to me through Mr. Elwes, from Teheran, is just coming into bloom. In habit of growth it closely resembles *T. pulchella*. H. HARPER CREWE.

The Rectory, Drayton-Beauchamp, Tring.

THE SPRING GARDEN AT MARLFIELD.

THE spring garden at Marlfield is a sight which every one, in this locality at least, is proud of. It extends over several acres, and is just now very effective. Standing in front of the conservatory and looking south, the river Suir forms graceful curves, and sweeps about thirty yards in front of this fine old manorial residence, and to its banks gently slopes a remarkably well kept piece of turf. Abruptly rising in the distance is a hill of considerable elevation partially wooded, called, after the family, Bagwell's Mountain, and for some distance, skirting the base, the common Rhododendron seems to be quite at home. In the immediate vicinity the eye may rest on fine old tree specimens, propped up literally "on crutches," that have seen many weary centuries come and go, while in the distance, to the west, is Knocklofty, the residence of Lord Donoghmore. Both demesnes extend in this direction for miles along the banks of the Suir, and from an eminence high up, called Markham's Rock, some hundreds of feet over the river, a view can be obtained not soon to be forgotten. Besides the thousands of Rhododen-

Primula family, that like partial shade in summer. This arrangement is worth the notice of growers who complain in THE GARDEN occasionally of the failure of their Primroses, Polyanthuses, Auriculas, and others with which the summer's sun does not agree, or the parching March blasts. For some time double yellow, white, lilac, and deep red Primroses have made a fine show, not to mention the single forms, while in the cool fernery *P. viscosa*, *P. denticulata*, *P. cortusoides*, and *P. amena* are either blooming or preparing to do so. Many other hardy flowers, such as the *Anchusas*, *Japan Anemones*, *Malvas*, *Papavers*, *Ecnotheras*, *Dielytras*, seem here to enjoy both the shelter and partial shade. The flower borders are numerous, extensive, and well stocked. Plants of the perennial *Arabis*, white and red, are fully expanded, and have grown undisturbed for years. A speciality here is the *Aquilegia*, or *Columbine*. The soil is porous yellow loam, and, what does not always happen, *A. glandulosa*, *A. chrysantha*, and *A. Skinneri* grow and flower as satisfactorily as does that finest of the genus *A. cerulea*. As bees and breezes abound, I frequently noticed hybrids here I had not pre-

mossy turf, and not liable either to the influence of cutting winds or dusty simoons, the plants and flowers present a freshness and brilliancy of tint that, perhaps, except in such a garden and in the early spring, is unequalled. I cannot pretend to do more than glance at these brilliant combinations. At a long distance the eye catches the bright crimson of the *Star Anemone*—a perfect blaze of colour. I have seen these in many places, but never saw them do so well as here. I know of no early flower so showy or so useful for cutting. Except top-dressing, they are here undisturbed for years. So of many of the other occupants, such as *Crocuses*, *Narcissi* of various kinds, *Jonquils*, *Primula japonica*, *Irish Heaths*, *bulbs*, *Nemophila*, *Wallflowers*, &c. In the garden proper, as elsewhere, the covering for the walks is gravel, and though there are some miles to be looked after, by never allowing them to be neglected they are always neat and never Grass-grown. The drainage is perfect, no moisture lodges, and the seeds of the annual Grasses find no encouragement to vegetate. Effectively placed here and there through the grounds are fine trees of ornamental foliage, *Clematises*, and other taller and erect plants, climbing *Roses*, *Tree Pæonies*, variegated *Maples*, weeping trees, *Honeysuckles*, *Hypericums*, double-flowering *Peaches*, *Chili Pines* (*Araucarias*), *Yuccas*, &c., and always so situated that it would seem as if Nature planted them just where they should be. I must unavoidably pass over some remarkable evergreens *Coniferae*, the *Rose garden*, and, as not included' in my heading, all the houses, and conclude by briefly referring to some striking effects now apparent. Many of the beds are oval, and generally from 15 ft. to 20 ft. in diameter, well raised in the centre, and of great depth, with the advantage of a soil, often sent hundreds of miles, for potting purposes. It would surprise those who have not seen such what brilliant effects may be produced by various coloured *Daisies*, *Crocuses*, and *Anemones*. Take a massive (not single specimen) edging of white or red *Daisies*, then blue or lavender *Anemones*, and a centre of *Narcissus*, yellow or shaded; or, take a centre of *Hellebores*, then *Cheiranthus*, then *Myosotis*, then *Gentianella* (all colours contrasted and all different), or a centre or whole bed of *Saxifraga oppositifolia* or *S. Burseriana*, then *Alyssum saxatile*, or whole beds, if yellow becomes effective; then *Anemone coronaria* similar, and edged with *Erythroniums*, *Hepaticas*, or *Aubrietias*; or take a whole bed raised of *Pansies* or *Violas* now effective with *Irises* (blue), *Triteleias*, &c., the former coming in by-and-by, and see how effective such combinations look. Such is Marlfield in spring, though this account by no means does justice to it. W. J. M.

Connel.

VIEW IN A SMALL LONDON GARDEN.

HERE is a little view, taken in a small garden at Hampstead, which shows the picturesque and bold effects that one may get in a small garden, even in the suburbs of London. The pleasant little lawn on the Heath stretches from the drawing-room windows down the hill, and is fringed at its lower part with bold, well-grown trees. The flower beds are towards the edge of the lawn, and do not mar its verdure in any way. A single walk goes round the garden, and is in no way obtrusive. Our illustration fails to show the charm of the garden, because it does not show the breadth of the lawn, but it shows that a very small garden may have good trees, without which a garden is scarcely worth the name, a pleasant lawn and plenty of room for flowers.



View in a small London garden.

drons already referred to, at the base of the mountain there are several large beds both of Ghent Azaleas and the harder kinds of Rhododendrons, some fine old specimens of the brilliant crimson being at present blooming profusely. Between the Azaleas are several kinds of bulbs, the dark colour of the peat showing to advantage the bright white of the Snowdrops. Never have I seen finer specimens of *Lilium auratum* than grow in these beds, especially among the Rhododendrons. Here they grow, increase, and multiply, and take care of themselves, the partial shade afforded by the Rhododendrons for the next few weeks being quite agreeable to their early growth, while afterwards, when they overtop them, probably the sunshine is just as welcome. Beautiful clumps of flowering shrubs abound here; and *Jasmines*, *Vitis purpurea*, *Japan Quinces*, both red and peach-coloured, finely cover the southern front of the residence.

The garden boundary on the south is a shrubby border, extending more than 300 yards, with an average of about 20 ft. wide. Recently winding spaces have been cut out here and there principally to accommodate plants of the

viously seen. The same applies to many other perennials, such as the collections of *Campanulas*, perennial *Phloxes*, *Potentillas*, *Lupines*, *Scabious*, *Larkspurs*, &c., many of which are merely top-dressed annually, kept within limits, and grow on for years. A favourite edging in many borders is *Aubrietia purpurea* and *A. deltoidea*, and for months, from this time forward, few things can compare with them. *Gentianella*, *Daisies*, *Arabis*, alpine *Auriculas*, *Dianthus multiflorus*, the smaller *Saxifrages*, and the beautiful yellow mossy *Sedum*, with an endless variety of *Crocuses*, are also used for this purpose—their use depending on their effectiveness when contrasted with the other occupants. In a border here, some six years since, I noticed the beautiful double white *Campanula*, *C. persicifolia* albo-peno, only a short time since certificated at South Kensington.

The sunken garden is a delightful sight at present, such as no Londoner ever sees. There are several dozen beds containing most effective combinations, both as to colour, foliage, and position. It is reached by steps from the lawn and being surrounded with bright

INDOOR GARDEN.

GARDENIAS.

"B. Z." (p. 158) asks for particulars in regard to the soil, temperature, light, and size of pot most suitable for these plants. As to the soil, turfy peat in rough lumps is best. This should be freely mixed with sharp silver sand. Gardenias will live and grow in other soils, as, for example, in equal parts leaf mould and loam, equal parts loam, leaf mould, and thoroughly decomposed cow manure, and equal parts peat and loam. All the soils should be fibrous, and freely mixed with pure silica, or smashed bath or other pure sandstone; but they luxuriate, and form a perfect network or mass of roots in peat and sand; and why go further? Assuredly not for food, for that can be given to any extent in the form of manure or water. The best I have found to be that made from cow manure, and by no means strong, and used quite clear. As regards temperature, the *Gardenia* is a heat-loving subject; still, it may be safely rested in a temperature of 60°, but while growing and flowering from 70° to 90° suits it better. In such a temperature and an atmosphere so moist as to touch saturation the *Gardenia* leaves become large and green, and the flowers develop into a size and sweetness totally unknown and wholly impossible in the case of the same varieties grown in lower temperatures and under less fostering conditions. Some give a bottom heat in advance of the top or surface temperature of 5° or 10°. Others give no bottom-heat, as they affirm; but in all cases the temperature of the roots will range about the same as that of the house in which the plants are grown; and it seems a good deal like a joke to say that plants have no bottom-heat when grown in a temperature of from 70° to 80° or more. "B. Z." may rest assured that *Gardenias* can hardly be grown to perfection under a temperature of 70° to 75°. We often give ours 15° more than the latter by day, and do not care to have them under 70° at night. As to light, the more of it the plants can have the better. This, however, does not mean the more direct sunshine the better. If grown in large houses and placed a yard or two from the glass, direct sunshine may not injure the plants. But, placed near to the glass, *Gardenias* in full growth and flower should be shaded from direct sunshine from eleven a.m. to three or four p.m. after the middle of March—that is, assuming the houses they are grown in faces the south. In houses of other aspects shading may either be dispensed with or timed to suit the sun's greatest heat. Fierce sunshine is not only apt to scorch the tender leaves, but to cause the flowers to drop in shoals and generate thrips and red spider—two of the greatest enemies of *Gardenias* under inferior cultivation, but rarely or ever seen where what may be called the true tropical course of culture is adopted. As to size of pots, no pots are best. *Gardenias* under genial conditions are gross-rooting plants. Unlike the majority of plants, the more room in reason the roots have, the more freely the plants bloom. *Gardenias* positively refuse to be stunted into blossom. If they cannot be planted out they should be over rather than under potted. Of such vital importance is root room and fresh soil for the roots to possess, to *Gardenias*, that not a few of the best growers throw away their old plants when they cannot shift them further. Very fine plants, however, 5 ft. high, and almost as much through, may be grown in 12-in., 14-in., or 16-in. pots. But double or treble the flower may, as a rule, be gathered from planted out *Gardenias* to those grown in pots. Young plants, on the whole, also flower best. *Gardenia* cuttings are easily rooted, and the plants are quickly grown. The surest way to have a good supply of those most fragrant of all flowers is to strike a few cuttings every year, and grow plants of all sizes, from one year up to eight or ten, and of all ages from 6 in. to 6 ft. or 8 ft., and throw away a few of the oldest annually. This is a sure and easy method of reaching success in *Gardenia* culture, in which so many good gardeners have failed. One more point is most important. During the flowering and blooming season

Gardenias must be flooded rather than watered daily or nearly so; otherwise the flowers will drop and the health of the plants speedily suffers. To enable this semi-deluging to be continued with safety, the plants, whether in pots or planted out, must rest on a good free substratum of drainage.

D. T. FISH.

KALOSANTHES IN SMALL POTS.

YEARS ago *Kalosanthes* were marvellously well grown and shown, but, like many other plants, they seem to have gone out of fashion. They are, however, unrivalled as regards general usefulness. For ordinary purposes the best plants are those grown in 6-in. or 8-in. pots. Being of a succulent character, they require but little root room, and may be kept in the most perfect health in a very small amount of soil if their wants as to water are duly provided for. A great mistake often committed is keeping them too wet in winter. In order to get plants ready for next season it is necessary to start with their propagation at once. Cuttings may be had by taking off the heads of any of the shoots not set for flower. These should be divested of their lower leaves and inserted singly in sharp sandy soil in small pots, and if placed on a dry shelf near the glass in a warm house they soon root, and may after that be at once shifted into the pots in which it is intended for them to bloom. As soon as they get a fresh start, which they will in a short time if kept a little close, the point of each should be nipped out, which will cause them to break freely below, and by proper management each of the shoots which they form will yield a fine head of bloom. In order to cause them to do this they must have plenty of light and free ventilation, which can be best secured by growing the plants in a cold frame during the summer, as there the sashes can be taken off when the weather is favourable, and the plants fully exposed. One thing to be guarded against, however, is a too sudden transition from the protection of glass to the open air and bright sunshine, which, unless gradually insured to the change, scorches and discolours their leaves, and this not only weakens the plants, but detracts from their pleasing appearance.

The best situation for them when taken from frames or pits in autumn is a light, airy shelf in the greenhouse, where all the attention they will require till the turn of the year is an occasional watering; this should, however, only be given when they are really dry and absolutely need it to keep their leaves plump and fresh. When the days lengthen and the demands on the roots increase, the soil should be kept moist, and it will be a great help to the plants if they are supplied with weak liquid manure, which assists materially in preserving the foliage healthy and adding to it a dark, rich green colour. In spring it is advisable to again transfer them to some light pit or frame where they can be fully exposed to the sun, the object being to prevent any drawing or weakening of the shoots, as when the stems lack the requisite strength to support the flower-heads, staking has to be resorted to, which quite spoils their natural beauty.

To obtain fine specimens for exhibition or for other special purposes, two-year-old plants are necessary, as in one season it is impossible to get the frame-work, which can only be furnished by cutting back year-old plants, and the earlier this is done the better they bloom. After the cutting back they should be kept dry till they break again, when they may be partially shaken out and repotted. The soil that suits *Kalosanthes* best is a fibry loam with plenty of sharp sand to keep it porous. In this they should be potted firmly and be carefully watered and encouraged to make free growth early, so as to afford plenty of time for getting ripe, as on the thorough maturation of the shoots their freedom of flowering depends. The only insects that affect *Kalosanthes* are green fly, which find their way into the points of the shoots, and if not disturbed soon cripple them to such an extent as to prevent them from blooming. The easiest and safest way to clear them from these pests is to puff a little

Tobacco dust over them, and after an hour or two it may be syringed out again, as the aphides will then have lost their hold and may be washed clean away.

S. D.

WALL CREEPERS.

If anyone has an ugly back wall in his stove—and in old-fashioned houses they are generally to be met with—bare, unsightly spots, which seem to defy all attempts to cover them or make them harmonise in any way with the contents of the house, I would advise him to take a hint from an admirable attempt to utilise such a wall, so as to make it contribute to the attractions of the house, which has been made in the *Nepenthes* house in Messrs. Veitch & Sons' nursery, at Chelsea. The wall in question, which is at the end of the house, is shaded almost to darkness; owing to the moisture-laden atmosphere required by the *Nepenthes*, it is covered with dark Moss, and over this running in all directions and in the most vigorous health may be seen the little *Ficus minima* and *Pothos celatocalis*. These two plants, as well as another not here used, viz., *Marcgraavia paradoxa*, grow with their leaves pressed as close to the wall as if they were glued to it, and the light green tint of their foliage, which is arranged neatly and regularly along the stems, contrasts prettily with the dark mossy back ground. The *Ficus* is well known, and often used for the purpose here alluded to, but the two other plants named are comparatively new introductions, whose merit, however, for purposes of this kind is certain to make them popular. For covering the stems of large Tree Ferns or stones in warm ferneries, these plants are just what is wanted; and as they love to creep about in dark and damp places, they would be quite at home thus situated. Has anyone flowered the *Marcgraavia* just mentioned? B.

HELIOPTROPES UNDER GLASS.

FOUR years ago I planted out a *Heliotrope* against the back wall of a vinery; it grew apace, and by the time it had been twelve months planted it had filled its allotted space—about 144 square ft. Could we have allowed it more wall surface it evidently would have covered as much more in another year. It has been in bloom I might say ever since, and by a judicious use of the knife we can have it more or less in bloom at any particular time of the year, winter being the season in which it is most appreciated. In order to have it in bloom then we give it a partial cut over in autumn. I say partial, for pruning is done piecemeal and cautiously and on the spur system, cutting off all the long shoots only, and leaving the shorter ones to do duty until we require to take them off, which we generally do about Christmas.

During summer the shoots become much drawn on account of the foliage and shade from the Vines, but we do not make ourselves uneasy about that, as bloom is not so much thought of then as in winter; nevertheless, bloom there is if required, which, at this season, is almost white on account of the heavy shade, so much so that I have frequently been asked if it was a white variety. When the Vine leaves fall the growth soon becomes more stubby, and the flowers assume their natural hue. Not only do we find this plant serviceable in keeping us supplied with its sweet-smelling flowers, but from it we get yearly a full supply of cuttings for flower garden use, saving us the necessity of keeping a stock in pots from which to get cuttings. We cut over again partially as above about Christmas, and by March we have nice young growths from which we take our stock of cuttings. As the season most suitable for planting out is drawing near, I would recommend anyone who has the convenience to plant out a *Heliotrope*, believing if they do they will not be disappointed as to the results, provided they can place it in a suitable position. I may here remark that the position in which we have ours is not the best, as will be seen from the above, but on the whole it answers very well. The vinery in question throughout the winter months

is kept at a temperature fluctuating from 35° to 45°, according to the outside temperature, and being the then rendezvous of Camellias, Azaleas, &c., it must necessarily be kept up to about that temperature, suiting to a hair's-breadth the Heliotrope and other things therein. For pot culture we grow the dwarf dark Imperial and Rose Supreme, a variety which came out two or three years ago, and which is a decided acquisition, being a robust grower and producing very large trusses of a decided pinky colour.

SAML. KEVAN.

MELASTOMA MALABATHRICA.

Most of the cultivated Melastomads are handsome plants, but unfortunately some of the finest of them are somewhat difficult to manage. *M. malabathrica*, however, is one of the easiest to grow well, and, moreover, one of the finest, soon forming a good sized bush, and producing a plentiful crop of flowers. The latter, which often measure 2 in. across, are of a beautiful

sheltered situation in the open air from June to October. This treatment ripens the wood and seldom fails to make them bloom. Grown in 12-in. pots in the form of pyramids, pruned annually after blooming to yield an abundance of young, not overstrong shoots, and treated as above, Myrtles will mostly bloom pretty freely in pots.—D. T. F.

Forcing Pinks.—The earliest started plants of these will now have their flower buds well advanced, and it will be observed that numbers of small side growths have pushed out from the base of the stems. If these are now taken off and potted they will speedily strike root in a hot-bed. They must then be gradually inured to cold frame treatment, and afterwards potted or planted in boxes, and when strong enough and sufficiently hardened off they should be planted out about 1 ft. apart in beds, where they will grow into large clumps in the course of the season suitable for digging up and potting for forcing about the end of September, or they may be allowed to grow as border plants. Those who have no forcing houses will find ordinary garden frames useful for bringing plants of these Pinks into bloom earlier than

took pity on them and bought the lot cheap, not expecting them to do much, if any, good till they had time to recover their starvation at all events. Much to my surprise, however, they started into growth on being potted with amazing vigour, and are now showing three and four blooms apiece, being by far the best pots I have.—W. E. G.

ORCHIDS.

NEWLY IMPORTED ORCHIDS.

"F. G." ASKS (p. 158) some of your readers to give their experience as to these, and his questions (especially where he asks what proportion will bear inferior flowers) are put in a form of charming *naïveté* that appeals to the sympathy of one who, a very short time ago, knew as little on this subject as he seems to do, but who has now learnt his lesson. I dare say I can help him and others in the like situation, of whom the number is, I am glad to see, increasing every year, better than many who have had ten times my experience, for this simple reason, that gardeners whose knowledge has been acquired insensibly during years of experience seem never to realise what it is that a beginner wants to know exactly, and assume a knowledge on his part which he does not possess. In the first place "F. G." seems to think that an Orchid is an Orchid, and what is good for one is good for another. The fact is that the kinds from different countries require very different treatment. They may be broadly divided as follows: 1, cool Orchids from New Granada and Peru; 2, intermediate Orchids from South America and Mexico; 3, East India Orchids. The first class, comprising such species as *Odontoglossum Alexandræ*, *Masdevallias*, &c., seldom have living roots when imported. They should be placed on broken crocks, in a house of the temperature of from 50° to 60°, the atmosphere of which is moist, and it should be carefully shaded. At first the crocks should not be wet, or the bulbs will damp off. The moisture of the atmosphere will, in a week or two, cause the bulbs to swell gradually if they have any vitality, and shoots will spring from the base, followed by roots. When growth has thus commenced, the crocks may be carefully watered, which will assist the growth. When the shoots are grown to a third of the length of the old bulbs, or new roots appear, which will be at the base of the new shoots, the plants should be potted separately, the smallest pots being used that will hold them. The pots should be nearly filled with crocks—large ones below, and small at the top. On the crocks should be laid $\frac{1}{2}$ in. of peat with the dust beaten out, so as to leave the fibres only, and on this peat the plants should be laid, the peat being put so as just to cover the base of the old bulbs, and to make them firm in their places. Sometimes it is useful to pass a piece of bast mat between the bulbs and round the bottom of the pot to prevent the plant from shifting till the new roots have made it firm. They will soon grow down into the peat, and the shoot will grow rapidly. At this stage bits of live Sphagnum should be stuck into the peat, with the green tops outside, and the plants may have more water. The Sphagnum will soon grow and cover the peat with a close surface like grass, and the plants will grow apace and each shoot form a bulb, from the base of which a flower-spike will come in about twelve months. This should at once be cut off as soon as the flower has opened, so that the character of the variety can be ascertained, as it weakens a young plant if its flower is allowed to continue; and, in fact, it is better for the plant if all the flower buds but one on the spike are cut off when they appear. It is sufficient if one bud only is retained and allowed to open so as



Malabar Laurel (*Melastoma malabathrica*).

lilac-purple, a colour which, viewed in connection with the handsome foliage, makes the plant when in bloom very attractive. In a mixed stove it grows as freely as a Pelargonium in a soil composed of equal parts of loam and peat, to which should be added a dash of sand. Cuttings of it strike freely in bottom-heat under bell-glasses. It is a common plant in Malabar, where it is used much in the same way as the common Laurel is here; hence the name Malabar Laurel.

W. G.

Myrtles not flowering.—"J. W. C." probably expects these to flower too soon. There is a variety or two of Myrtle that flowers pretty freely in small pots and in the form of young plants; but as a rule the common small and large-leaved varieties, which probably your correspondent means by "both kinds," must have both size and age before flowering freely, or in fact at all. A heated vinery would retard, not accelerate their flowering. Myrtles are very cool greenhouse plants, and they will flower all the more freely if placed in a sunny,

usual. Lady Blanche is by far the best white forcing Pink—the white is so pure, and the delicate perfume pleasing to everybody. Lord Lyons is still, as far as I know, the best of the purple kinds. It forms a neat, compact plant, and blooms profusely. Mrs. Moore and Mrs. Pettifer are white with dark centres. Derby Day is also a large handsome purple-flowered variety.—J. DOUGLAS.

Starved Corbularia bulbs.—Happening to be in a seed and bulb merchant's shop at the commencement of last December, I noticed a couple of dozen bulbs of the pretty little spring-blooming *Corbularia conspicua*, apparently in a most miserable plight, and calling out to be planted, as they had been lying on a flat basket without any soil about them since they had been received from the Continent some time in the previous autumn, waiting for some one to buy them, which apparently no one had cared to do. All the bulbs had shrunk and shrivelled considerably, and their outer sheathings looked much too large for them and hung about them loosely, but most of them were shooting and trying to grow in a necessarily feeble and unsatisfactory manner. I

to show the variety. The plant may now be repotted in a larger pot, of a size depending upon the amount of roots, and with more peat and less beaten out, and the surface may safely be at once covered with Sphagnum.

If this treatment be adopted I can promise that not a single plant will be lost which had any vitality to speak of at the outset. I do not say that all this care would be required by an experienced grower, who might safely adopt a more rough-and-ready mode of treatment, but for a beginner I am sure the advice is good, and safer than any plan I have seen adopted. My first experience was founded on the example of skilled Orchid growers, and led to losses, but by afterwards adopting the plan recommended, I established nearly all the plants contained in a box bought at Stevens's last April, containing some 200 plants, and I feel sure that the few which failed were dead at the time. About twenty-five have already flowered, and the rest are strong, healthy plants, and will soon flower. I should add a caution against burying Sphagnum in the peat or under it. It always dies if so treated, and becomes sour and kills the roots, forming a sort of wet blanket for them. When repotting established plants purchased I always find the roots dead which have penetrated the lumps of dead Sphagnum which are so often mixed with the peat. I think Sphagnum should never be used except by planting it—a patch of Sphagnum between two lumps of peat, with the green top above the surface. Thus treated, it lives, and is of great value, both by keeping the peat open and drained, and preventing it from becoming sour, and also by keeping an even degree of moisture about the plant. The young roots run about in it and do not die, as they are so apt to do when they penetrate peat too closely packed, especially if the sand and dust are left in it, and still more when they penetrate lumps of dead, sour, buried Sphagnum.

As to the next class, such as Cattleyas and Lælias, I find the best way to establish newly imported plants is either to fasten them with copper wire on blocks or branches of trees, in which case they require the blocks to be kept constantly moist, which takes a good deal of watchfulness, or else, what is an easier plan, fill a pan or basket with crocks or charcoal, and then place a very little peat (still more reduced to a state of fibre, by beating out the dust, than even in the case of Odontoglossum) in the centre of the pan or basket, and fasten the plant on the top of the peat with wire, or by tying the old bulbs to stakes if they are heavy and disposed to fall over, or, if baskets are used, to the wires by which they are hung. The stems or rhizomes should not be covered, but laid on the surface, the peat being so arranged as to come close up below the youngest bulb, from which the new shoot is likely to spring, so that the new roots which shortly after the new shoot has begun to grow will spring from the base if it may at once touch the peat. The peat will, if so arranged, form a sort of mound sloping down from the new shoot, and the new roots will grow down over the surface of it, and be much less likely to die than if they penetrate straight down into the peat and crocks beneath, as they will do if the base of the old bulb is covered. When the new roots have grown down over the peat in the centre of the surface of the pan or basket, and approach the charcoal round the edge, a little more peat may be laid on this round the edges, and a little Sphagnum may be carefully used; but it is more apt to injure this class of plants by making them too moist than Odontoglossum or Masdevallias, which can hardly be too moist when growing vigorously, always assuming that the drainage is perfect. Cattleyas and Lælias are very susceptible to injury from

over-moisture, and if Sphagnum be used it should never be allowed to cover the base of the bulbs, or they are apt to rot. They should be kept in the intermediate house, and be much less shaded (except as to imported plants not yet established) than cool Orchids.

Lælias when established require sun to flower well, and so do Cattleyas, though to a less degree. The thinnest shading in scorching summer sun is necessary, but the more sun they have in winter and even in summer, except at mid-day, and short of making the bulbs shrivel, the more flower they will have. But this does not apply to unestablished plants, which would have all the vitality dried out of them if exposed to sun. It should also be noted that I write in Lancashire, which has not a sunny climate. As to Indian Orchids, there is less difficulty; I have never lost one. Aerides, Vandas, and Saccolabiums I hang up in the hottest house with the top downwards, and syringe until the roots begin to grow, which they soon do, and then they may at once be placed in their permanent quarters, either on blocks, or, what is safer and more convenient (because requiring less watchfulness and watering), in pots or baskets with nothing but large crocks or pieces of charcoal and a surface of growing Sphagnum, not carelessly or thickly laid on, so that any part is covered from light, but placed upright with the green tops at the outside. In this way it grows and none of it dies. The use of it is simply to keep up an equal degree of moisture. I do not think that plants of this class require any peat or other substance for nutriment, but derive all their nourishment from atmospheric moisture. It would be best if the roots could be exposed to the moist air of an East Indian house, especially if clinging to blocks or branches, but for the inconvenience of this method of growth arising from the enormous length to which they spread. If confined in large pots, growing in large crocks, covered with Sphagnum, they would seem to extend much less, probably because thus they are kept constantly more moist, and feel less need to extend themselves in search of atmospheric moisture. Vandas require more sun and air than other sorts.

The treatment of imported kinds of Dendrobiums is equally easy. If placed at once on the top of pots, pans, or baskets (according to their size), filled with crocks or charcoal covered with Sphagnum, and, with some species, a little peat, and the bulbs secured by tying, they begin to grow at once in the East Indian house, with plenty of water, until the end of summer, when they should be removed to the intermediate house and exposed to more light and sun as autumn advances, which swells and ripens the bulbs till they are fully formed, when water must be gradually diminished, and with the deciduous sorts ultimately ceased entirely, or nearly so, so as to give them a long period of rest, lasting with most sorts until next spring is well advanced. I never lost an imported plant belonging to this class by following this treatment. The error I fell into at first was continuing to grow them on too long in the India house, which made the new bulbs too long and too soft, and less apt to flower. Some sorts, such as *D. nobile*, *D. devonianum*, *D. chrysanthum*, *D. thyrsiflorum*, and *D. Farmeri*, may be wintered in the cool house if (as is the case with some growers) the minimum temperature be not allowed to be lower than about 50°. The evergreen sorts should not be kept quite so dry as the others, but none should be allowed to let the bulbs shrivel. It is better, however, to prevent this in winter by keeping the atmosphere tolerably moist than by much root watering. The East India house should have much thicker shading than the Cattleya house, and should be kept much more moist. I

have a little travelled beyond "F. G.'s" question, because I believe the result of my experience may be of value to beginners, owing to my having so recently had to find out everything for myself, and being consequently well acquainted with the exact things which they want to know, and I am told I have had an unusual degree of success, though I confess myself to be only

AN AMATEUR.

Aigburth, March 11.

GARDEN FLORA.

PLATE CCCXXX.—ODONTOGLOSSUM EXCELLENS.

THIS is certainly one of the rarest and one of the most beautiful of Odontoglossums. It was introduced by Messrs. Low among an importation of *O. Pescatorei*. Fortunately for them, but unfortunately for those who now have the growing of the plant, it commenced its career as a cultivated plant by pushing up a flower-spike instead of a growth. This spike, small as it was, proclaimed the rarity and beauty of the supposed *O. Pescatorei*, and at once raised its value to at least five-and-twenty times as much as that of an ordinary *O. Pescatorei*. The spike in question drained almost every atom of life out of the bulbs, so that nearly a year elapsed before the necessary growth appeared. When this Odontoglossum opened its first flowers some took it to be a yellow *O. Pescatorei*, while others thought they could trace both *O. Pescatorei* and *O. triumphans* in it. In time a flower reached Professor Reichenbach, who named it *O. excellens*, and who considered it probable that it was a hybrid between *O. Pescatorei* and *O. tripudians*. We know as a fact that both these plants grow and flower side by side in a wild state, so that we can readily believe that Prof. Reichenbach is not far wrong as to the parentage of *O. excellens*. Considering the material from which the annexed plate was prepared, the flowers of *O. excellens* are well represented.

CULTURE AND POSITION.—It is almost needless to touch on the cultivation of this Odontoglossum, as the chances are very small of our ever seeing many plants of it in this country. Experience has taught us that its supposed parents thrive in a moist, airy, shady atmosphere, with a temperature in winter ranging from 50° to 60°, a temperature which should be aimed at as near as possible in summer. Well-drained peat and Sphagnum will suit the roots, which should be kept constantly moist.

J. C. SPYERS.

ORCHIDS AT FERNSIDE, BICKLEY.

AT this place Mr. Pollett has formed a small, but extremely choice, collection of Orchids which are as well grown and cared for as any similar collection we know of. It may be seen at a glance that the aim has been not to merely form a collection, but to represent some of the finest types; in fact the cream of those in cultivation. One of the most noteworthy among the cool Orchids is *Odontoglossum elegans*, an extremely rare Orchid, which indeed exists in only one other collection in this country. It is considered to be a hybrid between *O. cirrhosum* and *O. Halli*, and its relationship with these two species is pretty evident; it has the general aspect of *O. cirrhosum*, but the sepals and lip are broader and the colours are different. Altogether it is a handsome Orchid. Mr. Pollett's plant bears two spikes—one with ten flowers, the other eight. Other *Odontoglossums* worthy of note were uncommonly fine forms of *O. Rossi majus*, which is grown freely here, and *O. Roezli*, both the typical and white variety, and both in perfection. *Spathoglottis Lobbi* is an Orchid that much interested us, inasmuch as it is uncommon and exceedingly



1. *ODONTOGLOSSUM EXCELLENS* L. O. PESCIATORE.

pretty and bright. It is a terrestrial species, having bulbs something like those of a *Pleione*. From these arise slender, hairy flower-stalks 1 ft. or more high, and these bear some half-a-dozen blossoms, 1 in. or so across, in form like some of the *Phalenopsis*, and of a clear yellow colour lined on some parts with chocolate. This very graceful *Orchid* is one that ought not to be so rare, seeing that it may be easily propagated. It is of comparatively easy culture. It is a native of Burmah, and has been introduced for some years. Of the beautiful *Cattleya citrina* there were some fine plants in flower on suspended blocks, and under similar treatment was the charming little *Ionopsis paniculata*, which was likewise in flower. Other remarkable *Orchids* in flower were *Coelegyne ocellata maxima*, a fine *Orchid*; *Aerides Fieldingi*, the exquisite little *Angreum citratum*, *Dendrobium glaucum*, fine masses in suspended pots; *Calanthe Turkeri*, *Cymbidium eburneum*, very fine; and several *Dendrobies*, including *D. Wardianum*. W. G.

THE BEST ORCHIDS.

THE remarks of "Peregrine" (p. 183) hit a blot in most collections, which, more than anything, has tended to check the general culture of *Orchids*. I have often thought that a collection confined to a dozen species, and those among the cheapest and most easily grown, would surpass in beauty most of the collections one usually sees. Here are the names of the dozen:—

<i>Odontoglossum Alexandra</i>	<i>Lelia purpurata</i>
<i>Conopsea cristata</i>	<i>Odontoglossum vexillarium</i>
<i>Lelia anceps</i>	<i>Vanda cœrulea</i>
<i>Cattleya Mossie</i>	<i>Phalenopsis grandiflora</i>
<i>citrina</i>	<i>Schilleriana</i>
<i>Dendrobium nobile</i>	<i>Lycaste Skinneri</i>

There are no *Orchids*, or indeed flowers, of any sort which surpass these, and few which equal them in beauty, and all are cheap and of the easiest culture, given the command of three different temperatures; but as many be only one or two housed it may be useful to give three short lists, divided so as to suit all who have a glass-house of any kind.

I.—Cool *Orchids* that succeed in a house with a minimum winter temperature of about 45°, shaded from hot sun in summer and the atmosphere kept moist.

<i>Odontoglossum Alexandra</i>	<i>Oncidium cucullatum</i>
<i>Pescatorei</i>	<i>Cattleya citrina</i>
<i>Halli</i>	<i>Masdevallia Veitchiana</i>
<i>membranaceum</i>	<i>Davisi</i>
<i>Rosa majus</i>	<i>Lindeni</i>
<i>Oncidium macranthum</i>	<i>Harryana</i>

II.—*Orchids* for an intermediate house, drier and less shaded than the first, with a minimum winter temperature of from 50° to 55°.

<i>Cattleya Mossie</i>	<i>Sophronitis grandiflora</i>
<i>Triana</i>	<i>Wendlandium</i>
<i>Lycaste Skinneri</i>	<i>Odontoglossum vexillarium</i>
<i>Cymbidium eburneum</i>	<i>Coelegyne cristata</i>
<i>Lelia anceps</i>	<i>Vanda cœrulea</i>
<i>purpurata</i>	<i>Maxillaria grandiflora</i>
	<i>Dendrobium nobile</i>

III.—Stove *Orchids* requiring a house with a minimum winter temperature of from 60° to 65°, a moist atmosphere, and shading during the summer.

<i>Phalenopsis grandiflora</i>	<i>Dendrobium suavisimum</i>
<i>Schilleriana</i>	<i>Wendlandium</i>
<i>amabilis</i>	<i>crassinole</i>
<i>Odontoglossum Roezli</i>	<i>heterocarpum</i>
<i>Angreum sesquipedale</i>	<i>Odontoglossum Phalenopsis</i>
<i>citratum</i>	<i>Cypripedium niveum</i>

With the exception, perhaps, of the two last, which require care in growing, all the above species unite the qualities of beauty, freedom in flowering, and easiness to grow, and if such sorts were selected there would be fewer complaints about *Orchids* being either expensive or difficult to manage, or shy in flowering. Of course these lists might be easily added to, but I have kept within the number of a dozen to illustrate "Peregrine's" point that the best sorts are comparatively few in number. Luckily, with these, as with many other plants, the most easily grown are usually the cheapest, and are so for that very reason, and they comprise in their number many of the greatest beauty. For instance, with outdoor

plants, what flowers are more beautiful than such cheap and easily-grown sorts as *Primroses* and *Polyanthuses* of various sorts, *Daffodils*, *Dog-tooth Violets*, *Scillas*, *Anemones*, *Delphiniums*, white *Lilies*, *Gladioli*, and the like, and with shrubs such as *Lilacs*, scarlet *Thorns*, *Syringas*, *Weigelas*, and many others equally in the power of all who have a garden? Like air and water, some of the best gifts are most freely given to man. E. H.

Aighbuth.

Oncidium sculptum.—A rare species, partaking of the growth and habit somewhat of *O. macranthum*. The flowers are about 2 in. across, with sepals and petals of a dull brown, but edged with bright gold, crisped and wavy, while on the labellum there is a curious blotch of a white waxy substance, which gives the flower a peculiar appearance. In flower at the Pine-apple Nursery, Maida Vale.

Odontoglossum (Ersted.)—The finest examples we have yet seen of this charming little *Orchid* are in Messrs. Henderson's nursery, where it is very successfully grown in a cool house with other *Odontoglossums*. Some of the plants are in bloom, and the pure white waxy flowers, with a central dash of golden yellow, render the plants very attractive. This little gem should be grown in all good collections.

New form of Odontoglossum Pescatorei.—The finest variety of this *Orchid* that has ever come under our notice has just flowered in Messrs. Veitch's nursery at Chelsea. Its flowers are large and well "filled out;" the ground colour is white, over which are heavy blotches of deep maroon-crimson, which extend nearly over the sepals and petals as well as the labellum. Such a distinct and beautiful form is surely worth a varietal name.

Cypripedium insigne aureum.—This is a remarkably distinct variety of the *Lady's Slipper*. It differs from the ordinary form in a twofold way; the whole flower is suffused with a decided shade of golden yellow which gives it a very distinct appearance, and it flowers at a considerably later period than the other forms. Only a few days since we saw one in bloom in Messrs. Henderson's nursery, Pine-apple Place, Maida Vale, where we believe it is only to be met with.

The Vandas.—This class of *Orchids*, which is better represented than any other in the collection at Kew is flowering well this season, particularly *V. suavis*, of which there is an uncommonly fine variety represented by two handsome racemes on a tall stately specimen. It is much to be regretted that the other genera of *Orchids* are not better represented in our national gardens, especially having regard to the increasing interest and popularity now attached to *Orchids*.

Masdevallia Schimmi.—Of this exceedingly rare and very handsome species there are a few semi-established plants in the Pine-apple Nursery, Maida Vale. It is described as having flowers similar to those of the Humming-bird *Orchid* (*M. trochilus*), but bears, instead of one, from six to eight flowers on short stems. The foliage is ample, like that of most of the Chimeroid section of *Masdevallias*. Now that this long-looked-for *Orchid* has been successfully introduced it may, we hope, continue to do well with us.

Bolleea cœlestis.—The *Bolleeas* and allied genera *Pescatoreas*, *Huntleyas* and *Batemannias*, are grown in a most successful manner by Mr. Salter, at Selborne, Streatham, which is the more remarkable, inasmuch as they are generally seen in a poor state. The house in which they are grown here is one facing the north, one in which a tolerably high temperature is maintained, but with plenty of atmospheric moisture. At the date of our visit a remarkably fine form of *B. cœlestis* was in bloom, with large deep coloured blossoms as fine as we have ever seen them.

Eulophia scripta.—This rare and handsome *Orchid* we lately saw in beautiful flower in Messrs.

E. G. Henderson's nursery. It reminds one strongly of *Ansellia africana*, but it has the bulb of a *Catasetum*, from the base of which the tall branching flower-spike proceeds. The flowers, about 1 in. across, are yellow, barred and spotted with chocolate-brown in a most peculiar way like some kinds of writing, hence its name. It remains a long time in beauty, and is altogether a desirable *Orchid*. Being a Madagascar plant, Mr. O'Brien grows it in company with East Indian *Orchids*.

Lælia acuminata.—The delicate beauty of the flowers of this *Orchid*, combined with its easy culture, renders it one of the most desirable for growing in the Mexican house on suspended blocks, the way in which it is grown so well in the *Orchid* houses in Messrs. Henderson's nursery, Maida Vale. There are two or three forms of this *Lælia*; one has almost pure white blossoms with nearly black centres; the others are more or less suffused with rose-purple. The large attractive flowers and the elegant manner in which they are borne on gracefully-drooping, slender stalks is very pleasing.

Opheya Bertoloni.—This little South European terrestrial *Orchid* is one that is interesting and very beautiful when examined closely. It has much the aspect of our native *Bee Orchis* (*Opheya apifera*), but the labellum is larger, convex, and furnished on the surface with a black velvet-like covering, except in the centre, where there is a conspicuous naked blotch like unburnished steel. This interesting plant is now in flower in the porch of the *Orchid* house at Kew, where it is grown in pots in company with other species, among which *O. lutea* and *O. bombylifera* are in flower, but neither are so attractive as *O. Bertoloni*.

Cirrhopetalum punctatum.—One of the most strangely curious *Orchids* we have for some time seen is this species, now in flower in the *Orchid* house at Kew. There is nothing remarkable in its manner of growth, but the flowers, which terminate a slender stem from 6 in. to 9 in. high, are arranged side by side, so as to form a crescent-shaped cluster. Each flower possesses a pair of sepals considerably larger than either of the others, and these stand out almost horizontally, and are of a yellowish green hue, while the other divisions are small and of a deep vinous purple hue, the whole flower being speckled and spotted. The labellum being hinged very delicately, the slightest touch gives it a peculiar oscillating movement.

Compactetia macroplectron.—This is one of the most charming little *Orchids* we have seen for a long time. Compared with the other cultivated species of the genus, it is unusually large, having lanceolate pointed leaves of leathery texture like some of the fleshy-leaved *Oncidia*. The flower-stems, produced from the base of the plant, are long and slender, and terminated by a raceme of blossoms which for form and size are best compared with the gigantum variety of *Oncidium cucullatum*, the sepals and petals being small and the lip 1 in. or more broad and flat; the colour is white, spotted and pencilled with a beautiful delicate lilac-rose. We lately saw it in flower in the Pine-apple Nursery, Maida Vale, the plant, in a suspended pot, having two spikes, one with eight flowers. It had been in flower for five weeks, and was still in perfection.—W. G.

SHORT NOTES—ORCHIDS.

Vanda Parishii.—This rare and very beautiful *Orchid* is now flowering in the Pine-apple nursery, Maida Vale. It is one of the highest coloured of all, and the flowers are large and highly attractive.—W. G.

Orchis longibracteata.—This fine *Orchid* is not at all uncommon about Mentone. I brought home several roots and flowered them in pots for three or four years, but they gradually dwindled away and at last perished. I fancy I kept the roots too dry when the plant was at rest. This *Orchis* I always found growing in rather shady and moist spots.—H. BURNLEY, Wandon, Woburn.

Miltonia caneata.—This is very handsome when grown as finely as we lately saw it in Mr. Southgate's collection. It is allied to *M. candida*, but is distinct both in the growth and flowers. The latter are from 2½ in. to 4 in. across, with dark chocolate sepals and petals, and large pure white lip faintly tinged with purple at the base. The flower-spikes are stout and erect, rendering the plant handsome in appearance. It is grown by Mr. Salter in the intermediate house. It is a native of the districts about Rio.

Orchis longibracteata.—This handsome Orchis is difficult to grow in our variable climate. I have several times had it, but only once succeeded in blooming it. The tuber was planted out in a glazed pit. It has a habit of coming above ground about Christmas, and almost always gets cut off by frost. I hope this autumn to procure some tubers and plant them 1 ft. or more deep in a sheltered position. I think then I may keep it below ground till the end of February or beginning of March and succeed in establishing it, but it naturally comes into bloom so early that I am rather doubtful if (except in the south of England) it will ever become a hardy terrestrial Orchid.—H. HARPUR CREWE, *Drayton-Beauchamp Rectory, Tring*.

Dendrobium Brymerianum.—This rare Dendrobe is as distinct in character from any other cultivated species as it is handsome; it has a beauty peculiar to itself, and with which few Dendrobes can compare. To those who do not know it it may be best described as being in the way of the common *D. fimbriatum*, with loose racemes of yellow blossoms, but larger than those of *fimbriatum*, and with a beautifully branched fringe attached to the labellum nearly 1 in. long. We lately saw it in flower in Mr. Southgate's collection at Streatham, where, in the intermediate house, it was one of the most conspicuous plants, though surrounded by crowds of other Orchids in flower. Among other Dendrobes in flower there we noticed some exceptionally fine forms of *D. Wardianum*, also *D. Finlayianum*, and a variety of *D. nobile* called elegans, of a very deep rich tint.

Rare Masedevallias in flower.—In Mr. Southgate's collection of Orchids at Selborne, Leigham Court Road, Streatham, some choice species of *Masedevallia* were lately in fine flowering condition. Amongst them was *M. bella*, one of the Chimeroid section. This has long, attenuated sepals, and was represented by an uncommonly fine plant growing in a boat-shaped basket. It bore eight expanded flowers besides buds, and the large size of the blossoms and their peculiarly rich colour, contrasted with the bright green of the healthy foliage, rendered the plant very conspicuous. The pretty *M. Shuttleworthii*, which is fortunately less rare than hitherto, is likewise well grown here, a specimen with six flowers being as fine as we have seen this species anywhere. There appears to be several forms of this *Masedevallia*, some having much larger blossoms than others, while some have the colours brighter and more clearly defined. This plant represents one of the brightest tinted forms, and when the blossoms are all expanded must be extremely attractive. Among other species in flower was the neat little *M. Estradei*, which is by no means an unattractive plant when well flowered. Mr. Salter, the gardener here, seems to be particularly successful in the culture of *Masedevallias*, particularly the Chimeroid section, such as *M. nycterinia*, *bella*, *Wallisi*, *Chamara*, which are grown in suspended baskets.—W. G.

Crickets and cockroaches.—Your correspondent (p. 138) need not put himself to further trouble in the way of drowning these by deluging the paths and causing too much damp. I have cleared houses of thousands in a single night with a 6d. packet of powder I got from Townson & Co., of Dordoin. After sprinkling a little on the floor at night I never saw them again. To growers of Cucumbers, &c., it is a great boon, and it is quite harmless to domestic animals.—W. RICHARDSON.

ROSE GARDEN.

ROSE SYNONYMS.

M. SCHWARTZ, of Lyons, contributes the following list of Roses and their synonyms to the *Journal des Roses* :—

Tea-scented.	
Alba rosea	Madame Bravy
Adèle Fradel	Madame Morin
Boiron	Guillot
Chilthide	Bougere
Duchesse de Brabant	Comtesse de Labarthe
Gloire de Bonheux	Belle de Bonheux
L'Enfant Trouvé	Elisa Sauvage
Lady Warrender	Clara Sylvain
Madame Denis	Madame Morin
Madame Planter	Albion
Madame Kousell	Eugénie Jovain
Madame Sertot	Madame Bravy
Madame William	Elisa Sauvage
Mathilde	Niphetos
President	Adam
Queen Victoria	Souvenir d'un Ami
Smith's Yellow	Smithy
Suraubondant	Guillot
Triumph of Orléans	Pafait
Bengal.	
Acrippina	Crémociste Supérieure
Comble de la Gloire	Gros Charles
Marguerite Lartay (Bourbon)	Impératrice Eugénie
Madame Lacharme (Tea-scented)	Virginale
Noisettes.	
Adélaïde Pavie	Madame des Longchamps
Baunt of Glazenwood	Reine des Yellow
Cloth of Gold	Chromatella
Comtesse de Beaumetz	Chromatella
Enfant de Lyon	Narcisse
Léila	Celine Forestier
Ma'am de Chaulonge	Le Pactole
Maréchal (Tea-scented)	Lamarque
Bourbon.	
Alice Fontaine	Emotion
Beauté de Versailles	Georges Cuvier
Céline Gonod	Modèle de Perfection
Duc d'Estères	Henri Lecoq
Eugénie Brion	Virgine Brion
Gloire de Brotteau	Edouard Desfossez
Isabelle Latur	Du de Richmond
Madame Neumann	Hermosa
Madame de stella	Louise Odier
Marat Jeune	Charles Souchet
Mélanie Lamarie	Hermosa
Michel Bonnet	Catherine Guillot
Sappho (Tea-scented)	Mrs. Bosanquet
Sou. de la Malmaison à fleurs Roses	Leveson Gower
Portland.	
Rose du Roi à fleur blanches	Céline Dubos
Rose du Roi à fleurs pourpres	Mogador
Rosa Rugosa.	
Hima'yensis	rugosa rubra fl.-pl.
Regeliana	rugosa rubra fl.-simplex
Taichou	rugosa rubra fl.-simplex
Centifolia.	
Madame d'Hébray	Unique Panachée
Hybrid Perpetuale.	
Alexander Dickson	Madame Palliat
Avocat Duvierv	Maréchal Vaillant
Belle Française	Le Lion des Combats
Belle Egarée	Madame Damet
Duc d'Elcheux	Fouquet Royal
Enfant d'Ajaccio	Souv. d'Anselme
François Fontaine	Sénéateur Favre
Froissard	Mrs. Standish
Futur Empereur des Français	Prince Albert
Général Hudelet	Comte de Paris
Général Lamoricière	Gervais Rouillard
Gloire de Châtillon	Germine Masson
Isoline	Paul Dupuy
Julie de Saint-Aignan	Sophie Coquerel
Leila	Louise Peyronny
	Baron Heckeren de Vasse-
	naer
Mme. Eugénie Cavaignac,	Madame Charles Crapet
Madame Hérivaux	Virginal
Madame Labaud	Auguste Mie
Madame Rival	Auberson
Mlle. Henriette	Charles Lefebvre
Marguerite Brassac	Dr. Marx
Marquis d'Ailla	Madame Renard
Mlle. Lassard	Clementine Seringe
Mrs. Wood	Clementine Seringe
Pauline Planter	Sénéateur Favre
Pusla	La Reine
Reine du Midi	Queen Victoria
Rose la Reine à fleurs blanches	Conseller Jourdeuil
Souv. du Petit Roi de Rome	Henderson
Triomphe de la Terre des Roses	Macane Campbell d'Islay
Triomphe de Valenciennes	

Moss Centifolia.

Centifolia alba (Moss) „ White Bath

Prairie.

Queen of the Prairies „ Beauté des Prairies.

A rosarian of great experience pronounces the above to be generally right. He is of opinion, however, that Madame de Stella is not the same as Louise Odier; that Michel Bonnet is not the same as Catherine Guillot; that Madame Rival is not the same as Auguste Mie, and that Reine du Midi is not the same as La Reine. These are decidedly different, though not, perhaps, what would be called distinct, and no doubt careless rosarians often substitute the one for the other.

Destruction of a famous Rose tree.

A late Californian paper contains an account of the destruction of the famous "Gold of Ophir" Rose tree in Grass Valley, in that State. The glorious old shrub had grown over and around an ancient Oak tree 50 ft. in height, and only stopped climbing upward when the tree top was reached and there was nothing more to cling to. Here it ran around through the massive top in a tangled whirl of beauty. Its main stem measured 26 in. in circumference near the base, and when in full bloom it is said to have been a conspicuous object of indescribable beauty. The variety of Rose is not stated, but the flowers seem to have been of a golden or yellow hue. The owner of this floriferous Oak regarded it with much pride; and some years since when it became partially uprooted in a gale of wind he brought it to its upright position again after much expense. But a few weeks ago another furious wind came and finished the ruthless work before begun, and there is now no remedy.—H. H., *Kingston, N.Y.*

GARDEN DESTROYERS.

THE CARROT FLY, OR NEGRO FLY.

(PSILA ROSEÆ.)

THE injuries caused to the Carrot crop by the grubs of this fly are often very considerable, and at times the entire crop is ruined by them. Plants which are attacked by this insect may soon be recognised by their leaves withering and changing colour prematurely. When this is found to be the case, if an attack by these grubs is the cause, on carefully pulling up the Carrots the grubs will be found partially or entirely buried in the root. This burrowing of the grubs into the Carrots causes the parts surrounding their galleries to turn a rusty yellow colour (when in this condition they are said by gardeners to be rusty), and sets up an unhealthy condition in the root altogether—it loses its sweetness, the rusty portions soon decay, and the fibrous roots die off. Many different methods are recommended for successfully dealing with this pest; their efficacy no doubt depends a good deal on the soil and in the manner in which they are applied; what may be useful on one soil may not succeed so well on another. The great object of the cultivator should be to prevent the fly from depositing its eggs on the Carrots. One precaution which will materially assist in effecting this is to keep the surface of the earth about the roots as compact and firm as possible, so that the flies may not be able to penetrate it and get to the roots. Frequent watering will greatly help in this matter, particularly if the soil is at all liable to crack. It has often been found that Carrots are attacked after thinning, which operation loosens the earth and facilitates the movements of the flies, and it is much recommended that unless the Carrots are thinned very early this process should be deferred until they are fit for use. Some cultivators thin their Carrots as soon as they are large enough to handle, and sow comparatively few seeds, so that very little thinning is required, and take all possible care that the surface of

the ground should be disturbed as little as possible. Any strong smelling preparation spread over the ground will be found very useful, such as gas-lime, spirits of tar mixed with sand (a gallon of the former thoroughly mixed with a barrowload of sand strewn over the land—this quantity will cover sixty to seventy square yards) or wood ashes mixed with paraffin oil (one quart of oil to a barrowful of sand or ashes) used in the manner just mentioned is very efficacious; or even a layer of plain ashes would probably be found very useful. Either the gas-lime or spirits of tar and sand may be spread over the ground and dug in before the seeds are sown; they will in this way be quite as useful as if spread afterwards and left on the surface. Watering at the roots with two wineglasses of paraffin oil diluted with one gallon of water is also recommended.

If these preventions have not been used in time, or if for any reason they unfortunately have not proved successful, and the gardener finds his Carrots attacked by the grubs, he must turn his attention to destroying them, and should first of all pull up all the plants which are badly attacked, as there is little or no chance of their being worth anything, utterly destroy any grubs which can be found, and fill the holes made by removing the Carrots, with some of the above mentioned mixtures. Watering with alum and water is said to be a cure if the Carrots are attacked by the grubs. All Carrot beds, espe-

resembles *P. rosea*, but is smaller, and is also supposed to attack Carrots. The Carrot fly is about two-tenths of an inch in length, and when the wings are fully open measures nearly $\frac{1}{2}$ in. across them. The head is yellowish brown, with antennae of the same colour and dark brown eyes. The thorax and body are of a shining very dark metallic green (nearly black); the legs are long and delicate, and are of a pale yellowish brown colour; the feet are five-jointed; the wings are transparent, with a slightly yellowish tinge and brownish veins; the halteres or poisers are nearly white. The full-grown grubs are about three-tenths of an inch long; they gradually taper from the tail to the head, which is pointed. The tail is blunt and furnished with two dark tubercles, which are the orifices to the breathing tubes. The grubs are yellowish, shining, and so transparent that their internal arrangements are clearly visible. The chrysalides are of a shining coppery yellow colour, and are rather redder towards the ends; they are about two-tenths of an inch long; their heads are rounded, but their tails appear as if a portion had been cut off in a slanting manner.

G. S. S.

REPORTS ON INSECTS.

EVERY one who has read Miss Ormerod's very interesting reports on injurious insects must be struck with the great amount of information she elicits from various observers as to the best means of dealing with certain insects. Miss Ormerod's observers are, however, mostly agriculturists, and consequently report almost entirely on insects injurious to field crops; and though many of the insects which destroy farm crops are equally destructive in gardens, yet the means which are very useful in destroying them on a large scale may not be applicable in gardens; and many insects which are very injurious in gardens are not found on farm land. Would it not be a desirable means of obtaining information [concerning garden pests if such of the readers of *THE GARDEN* and *Gardening* as are able would send you from time to time their experiences in dealing with various insects? At the end of the year a report might be published giving a *résumé* of the returns received, which I am sure would be very instructive. It would be well if your correspondents would record their observations as precisely as possible, giving the time of year when the attack was made, the means used for destroying or preventing the pest, the state of the weather when any application to the soil for that purpose was made, the nature of the soil, and the proportions of any insecticide used. Any accurate observations as to the utility or the reverse of birds would be very useful; I say accurate observations, for unless they are so, they will be worse than useless. It is often very difficult when birds are feeding among a crop to determine whether they are doing good or harm, for they sometimes pull up or destroy plants when a casual observer would insist on their being very mischievous, whereas if the examination had been carried a little further, it would have been found that the plants were unhealthy, and that the birds were only feeding on the insects which were the cause of injury to the plants.

G. S. S.

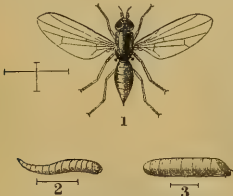
Worms in gardens.—The fact that recipes for the destruction of worms have been given in late numbers of *THE GARDEN* is quite enough to satisfy any one as to the opinion of practical men in regard to them, and proves that nothing advanced by the advocates of the worm in his new character as a horticultural labourer has proved sufficient to remove their dislike to his assistance. As "G. S. S." admits that the food must be in the soil before the worm can exist there, and as he

furthermore states that the enormous quantity of soil with which they top-dress is sifted so finely that no stones larger than those particles which they swallow are left in the finer mud, and that they eject, will any practical gardener claim that fine mud that must inevitably get washed down by rain and choke up the pores of the soil, and bake, and crack in hot weather, is beneficial to his efforts to keep his top soil well stirred? The mistake in this matter is the endeavour to isolate and view from one point only our estimable friend the worm.—LONDON STONE.

SEEDS FROM MERV.

ABOUT eighteen months ago I wrote to the correspondent of the *Daily News*, who stated in that paper he was trying to go to Merv, and I offered to be of any service to him in England I could if he would collect bulbs and seeds for me. His letter was kindly forwarded by the *Daily News*, and in about seven months I received an answer. The correspondent in question was Mr. Edmund O'Donovan. He told me there were several things he wanted sending to him—a good Russian map of North Persia, a water-colour paint-box, and a pocket edition of Byron. I obtained these for him, and he kindly busied himself to collect seeds and bulbs. Bulbs were very difficult to dig up, as he could not get a spade, and the nearest thing to it was his sword, with which he dug up a good many Tulip and other roots. Most of the first batch of seed were weeds or well-known flowers, like the Marvel of Peru, called there "A basit," and delighted in by the nocturnal Persians because it opens at night. I have frequently received the same seeds from Cashmere and other parts of Asia. Mr. Perry, at the Hale Farm Nursery, grew these seeds, and had to throw most of the plants away, being worthless, but I have some good hopes of some Rose seed sown by him, and also of a large white Hollyhock which will bloom with me this summer. As soon as Mr. O'Donovan reached England after his adventurous stay in Merv, he wrote to me to come and take away what he had carried for thousands of miles in his saddle-bags. Mr. O'Donovan is a tall, spare man, blue eyed, very good natured looking, and witty. We were soon squinting, eastern fashion, like tailors, on the floor, turning out our saddle-bags, full of manuscript, scraps of the *Daily News*, and curious eastern trophies. There were five large bulbs like an Onion in perfect condition, five Lily bulbs, of which only one will grow; quantities of Tulips, and a great many stones of Peaches and Apricots, three Plum stones, seed of a Colchicum or Crocus, and a dozen or more packets of seed of various plants, including Water Melons and Snake Cucumbers. The five large bulbs are of an Allium. He describes it as a plant of great beauty, with a spherical head, 4 in. through, of pale bluish lilac flowers. One bulb of this is coming up strongly in my little garden in Tite Street, Chelsea; the others are at Kew and St. Petersburg.

The Tulips are used for food, and grow all over the marly plains, their roots being at a great depth, and difficult to get up with only a sword. Luckily, they are used for food, and so he could obtain a nice little batch. These are at Kew, in the garden at Bingham, and at Baden-Baden. They are probably a new species, as he describes the flower as very large, scarlet, but the leaf showing is not *Tulipa Alberti*, the nearest known indigenous Tulip. I suspect the bulbs get deeper every year after they are first formed from seed at the surface, and so gradually come to their greatest perfection at a certain depth, and then go on forming themselves fresh every year at a greater depth till they dwindle away altogether. In the strong soil at Bingham I find this happens to Tulips.

The Carrot Fly (*Psila rosea*).

1, Carrot Fly (magnified); 2, Grub (magnified); 3, Chrysalis (magnified).

cially those in which the roots have been attacked by this insect, should be dug up as soon as the crop is removed, so that any grubs or chrysalides which may remain in the ground may be disturbed, as the birds have then a better chance of finding them. The flies leave the chrysalides which have survived the winter in the spring, and may be found from this time until the beginning of autumn in successive broods; they lay their eggs on the roots of the Carrots, which soon hatch, and the young grubs burrow into the soft roots in all directions, eventually destroying them. When full grown they leave the Carrots, and become chrysalides in the adjoining earth, from which the flies are produced in about three weeks. The chrysalides formed by the last brood of grubs remain until the spring before the flies leave them. Carrots have been dug up as late as the end of December containing maggots. Why the specific name of rose was given to this insect by Fabricius, who christened it, is uncertain, as the insect is not known to have a preference in any way for Roses. He was evidently ignorant of the habits of the insect, and it is supposed that he may have found them sunning themselves on Rose bushes, as many flies are in the habit of doing on various leaves.

The Carrot fly (*Psila rosea*) is one of the true flies, and belongs to the family Muscidae, of which family so many of our destructive flies are members. The genus *Psila* contains but few species, one of which, *P. nigricornis*, much

Of the Lilies only one will grow, and that is in Mr. Perry's hands at Tottenham. It is, I think, of the Martagon type, but larger than any bulb of pulchellum, which it most resembles. When Mr. O'Donovan was hastily leaving Merv, horribly afraid the news, which had reached him by special courier from Teheran, of the English having evacuated Kandahar would spread among the Turkomans, he was overtaken by men galloping after his party, but instead of a death-warrant they carried these five Lily bulbs which some Turkoman chief had quite forgotten to give him before. Mr. O'Donovan is going to lecture at the Royal Geographical Society on the 21th. The roots of Eremurus were so deep to be dug up without proper instruments.

Bingham, Notts.

FRANK MILES.

NUBIAN VEGETATION.

I HAVE now reached the limit of my present trip and seen the greatest wonders of this ancient land. But what so much interests us, namely, the vegetation, has fallen short of my expectations. Until one remembers that all plant life hereabouts depends on its water supply from the Nile (or soakage therefrom), or from artificial irrigation of a very primitive kind, the number of plants strikes one as being very limited for so large an extent of country. Of trees, besides two species of Palms (Date Palm and Doum Palm), which are abundant, there are very few indeed. Acacias (many only bushes) may be seen and the Sycamore Fig. The Castor-oil plant (*Ricinus communis*) is largely grown as a crop in these parts, chiefly high up the river the more south one goes. The most interesting plant I have found is one of the Asclepiadaceae, called *Calotropis procera*. It grows from 3 ft. to 10 ft. in height, and according to the position it is found in flowers on bushes of both these dimensions. It has large, handsome, grey foliage and bears bunches of reddish violet-tinted blossoms. It is rather a dangerous plant to meddle with, as the thick milky sap is said to cause total blindness. As a fine-foliaged plant it is quite striking, having large leaves slightly resembling those of a *Wigandia* in form (not in colour), and the bunches of bloom with masses of buds, like buttons of various sizes are very pretty, resembling bunches of Hoya. In Sir Samuel Baker's "Hill Tributaries" (p. 22, edition of 1874) it is described under the name of *Asclepias gigantea*. "This (he says) I had frequently seen in Ceylon, where it is used medicinally by the native doctors, but here it was ignored, except for the produce of a beautiful silky down which is used for stuffing cushions and pillows. This vegetable silk is contained in a soft pod or bladder about the size of an Orange. Both the leaves and the stem of this plant emit a highly poisonous milk that exudes from the bark when cut or bruised; the least drop of this will cause total blindness if in contact with the eye. I have seen several instances of acute ophthalmia that have terminated in loss of sight from the accidental rubbing of the eye with the hand when engaged in cutting firewood from the Asclepias. The wood is extremely light, and is frequently tied into faggots and used by the Arabs as a support while swimming in lieu of cork. Although the poisonous properties of the plant cause it to be shunned by all other animals, it is, nevertheless, greedily devoured by goats, who eat it unharmed." A small white *Convolvulus* and some aromatic Composites were the other chief native plants. One tiny little plant of an *Ageratum*, with blooms like our garden form (*A. mexicanum*), I also found growing on the river bank from which the Nile had receded. The Asclepias above alluded to is what has been called the Dead Sea Fruit, as what looks like a very large Fig has but downy seeds inside it.

J. T. POË.

To cure mossy lawns.—I observe (p. 159) full instructions for the cure of these by Mr. Hobday, but I never read such without mentally exclaiming, Why not leave the Moss alone? There are other causes at times for its growth than an excess of moisture or poverty of soil. It may be the natural product of the site, and when it is so, it not seldom forms a far better lawn than Grass or Clover, and at a tithe of the cost. Moss, when frequently cut and rolled, forms a green and elastic lawn—qualities not always found on those formed of the finest mixed Grasses or Clovers. It is also most useful in forming a subgrowth to fill up all the interstices between the Grasses; and if the Moss at times smothered off a goodly proportion of the stronger Grass, the loss is not without its comparative gain in less frequent mowings (a point of great moment where lawns cover large areas. In places where lawns are large and labour scarce, more Moss and less Grass

of the velvet-like pile and charming elasticity of the British lawn.—D. T. FISH.

THE DRAGON TREE.

(*DRACENA DRACO*.)

DRAGON Trees are not uncommon in our plant houses, but the largest of them are mere pigmies compared with the gigantic proportions which they attain when planted out in the open air in a genial climate. The famous Dragon Tree of Teneriffe, which was destroyed some five and twenty years ago by a gale, is quite a historical tree. It is computed that it had been in existence for upwards of sixty centuries. There are, however, other grand examples of Dragon Trees in various parts of the world, as, for instance, that in the royal garden of Ajuda, that



Dragon Tree (*Dracena Draco*) in the Botanic Garden at Cadiz. Height, 19 feet; circumference of stem, 15 feet.

on or in the lawns might often prove a real boon to the gardener without injury to the real and true enjoyment of the velvet turf. Some would go further, and affirm that few lawns are thoroughly enjoyable that do not contain a considerable percentage of Moss. That Grass alone will not give the unspeakable charm possessed by English lawns was abundantly proved by the state of the Grass at the great Exhibition in Paris, and in fact its general condition on the Continent. All that the finest selections of Grass seeds and water *ad libitum* could do to make good lawns was done, and the result was verdure in plenty, but more that of the English field than the true English lawn. No doubt some of the difference was and is due to the climate; but only chiefly because the climate is too dry to grow good Moss. The absence of the latter seemed to me striking and complete, and with the Moss vanishes much

in Lisbon, and that in the botanic garden at Cadiz, the appearance of which is well shown in the accompanying illustration. This noble tree is 19 ft. in height, and measures 15 ft. in circumference at the base of the trunk. Though this cannot compare in size with the Teneriffe Dragon Tree just alluded to, it nevertheless shows what a stately tree this *Dracena* in the course of time becomes.

W. G.

Felargoniums.—B. Z. (p. 158).—The following are the names of a few good new kinds, viz., Illuminator, Valiant, The Baron, Constitution, Fortitude, Venus, Emperor William, Virgin Queen, Joe, Amethyst, Duke of Connaught Mountain of Light, Trojan.—T.

Cyclamens in groups.—Allusion is made in THE GARDEN to the beauty of a houseful of Cyclamen persicum. Those who have not such an advantage may make a charming group for drawing-room decoration by placing half a dozen small plants in, say, 4-in. pots in a pan, and surfacing the whole with Moss. I have just such a painful in my drawing-room, and the whole is a

mass of flowers, and the foliage almost hides the pots, contrasting beautifully with the crimson, mauve, and white blossoms.—GREENWOOD FIRM.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SORREY.

A GOOD bunch of *Polyanthus*, if the flowers are well chosen, is a feast of rich colour. Where good kinds are grown there will be a variety of crimsons, browns, and deep yellows to choose from for one bunch, and of rosy reds, pale yellows, and whites for another; the kinds to be avoided in a bouquet are the dull browns mottled and edged with yellow, that give a spotty look without richness. A large brass bowl filled with the early-flowering red *Rhododendron* has an imposing effect, and a polished embossed copper holding large pieces of *Berberis Aquifolium* is another fine decoration. A pretty table bouquet is of *Ornithogalum nutans*, with palest blue *Hyacinths* and a few *Hyacinth* leaves. A white china basket holds flowers and foliage of *Omphalodes verna*, the growths of whole crowns being out low down—a wasteful-sounding plan, but one that may be practised with a few such vigorous and rapid growers. In a dark-coloured Venetian glass are twigs of Bay in flower and fruit from an old tree in a sheltered place, and a flower or two of black *Laurustinus*. A large sheaf of *Polyanthus* *Narcissus* stands in a tall glass. The colours pass from the pure white of *Tazetta papyracea*, through the white and yellow of *Bazelman* major, to the fine yellow and deep orange of *Jaune suprême*.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Chamæpsea (Fish-bone Thistle).—Though there are upwards of a dozen varieties of this Thistle, two kinds only are worthy of note, viz., C. Cassabonæ and C. diacantha; the former has glossy green spiny foliage, and the latter white, both being equally deserving of culture, particularly for sub-tropical and foliage arrangements. No plant can excel the green variety for use as a marginal band or edging to light coloured or variegated foliage plants, such as *Abutilon* Thompsoni or *Solanum argenteum*, and the white and longer leaved variety is equally pleasing in the same positions, but in association with dark coloured tall growers, such as *Ricinus* Gibsoni and the dark-leaved *Cannas*. We have also used them with excellent effect as dot plants in what is termed panel painting in formal or geometrical designs, and in such arrangements the most appropriate groundwork for the green variety is *Mesembryanthemum cordifolium variegatum*, and for the white variety, *Alternanthera* or the green *Sedums*. Both have proved perfectly hardy here, but as the second season they continuously run to seed, it is necessary to have fresh plants every year, which, to be in time for the summer bedding, should be sown in heat early in February. Our seedlings of this year are already fit to plant, and will be planted as soon as arrangements are completed.

Sowing and pricking out annuals.

The common varieties of annuals may now be sown in the open borders. Sweet Peas, Mignonette, Virginian Stocks, *Bartonia aurea*, Candytufts, Clarkias, Larkspurs, *Eschscholtzias*, Lupines, *Nemophilas*, Scabiouses, Silenes, and Sweet Sultans, are amongst those that we usually sow in small patches amongst Roses or on vacant spots in mixed borders, where most of the varieties not only do good service in filling up blanks, but are also invaluable for cutting. Though we sow annuals amongst Roses, it is only because, from want of space, we have no choice in the matter, as we would much prefer the ground being kept for the Roses alone, and any who are compelled to follow our practice in this respect would do well to sow the annuals at long distances apart, and as far removed from the Roses as under the circumstances is possible. It is also now time that

ornamental Grasses were sown. These we find quite indispensable for winter decoration, and hitherto have had the best success with them when sown where they are to grow much in the same way as the flowers just named. A still better plan, however, is to sow them altogether in some sheltered border, arranged as to distance of drills, according to the height to which each variety attains. The drills being drawn, as here indicated, fine soil should be sprinkled in them, and the seeds should be covered with the same material; if dry, they should be well watered. The soil drawn out of the drills should be left to serve as a protection to the young seedlings, and by and by, as soon as they have been thinned out, it should be levelled down with the hand, to serve as a mulching to the roots. Asters, Stocks, Zinnias, and *Phlox Drummondii* should be pricked off as soon as they can be handled, as except for the germination of the seeds, glass cannot be spared here for these classes of plants. We have recourse to turf pits and coverings of hurdles or mats, and under such conditions they invariably do well. They are pricked out in light vegetable soil, half light loam, and half leaf soil. About 4 in. in thickness we find ample, and as this rests on a hard bottom, the plants lift with such an abundance of earth, that they scarcely feel the check occasioned by removal.

Roses and climbers.—Now is the time when Roses are most generally pruned, but most of ours have been done six weeks ago. Some that we left by way of experiment are in full bud. Among these are several plants of *Souvenir de la Malmaison* and *Gloire de Dijon*, which are now quite as vigorous, and the buds as fine as in June, though how they will expand it is difficult to say. The plants have never lost their leaves, or indeed stopped growing the whole of the winter; therefore, all the pruning we propose doing is to thin out the weakly shoots, cutting these quite back to the main stems, and shortening here and there one or two of the longest, more for the sake of neatness than from any benefit likely to accrue to the plants by so doing. Those who decide to prune in the ordinary way should lose no time in doing so, nor in the cutting back of those kinds of climbers that need such attention. While the walls or trellises are thus bared the opportunity should be taken to thoroughly cleanse them from red spider and other vermin by bringing into play the hose or garden engine. This is especially needed where the eaves or verandahs so project that rain-storms cannot reach them; hence the attacks of spider and the unsatisfactory growth of the plants.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Cherries.—While it is difficult to imagine a more lovely sight than a house of Cherry trees in full bloom it is impossible to name a crop which can be brought to maturity at so little cost in everything, with the exception of patience, and of this the successful cultivator, be he professional or amateur, must have a good stock, as the temperature of the house under artificial treatment should not exceed 40° at night and 10° to 15° higher by day, and even then a stagnant atmosphere should be avoided by having the ventilators a little open. It sometimes happens, as has been the case this season, that the temperature of the open air is many degrees above these figures, when a constant circulation of air gives the trees all the advantages, minus the risk attendant upon culture on open walls. These favourable conditions have brought about a bold blossom, a good set, and rapid growth, so far free from insects, but the everlasting grub which never fails, is sure to put in an appearance which cannot be mistaken, and the first curled leaf must be the signal for daily examination and handpicking. When the fruit begins to swell the inside borders may be nicely mulched and well supplied with water at a temperature of 70°, and the trees will require good syringing twice a day, always with the ventilators closed, as it is the warm, genial atmosphere resembling that of a fine April day which helps the fruit along. After the first syringing give air

at 50°, gradually increase it to 60° under moisture, with a circulation of air, and ventilate to the full extent when sunheat raises the house above these figures. Reduce in a similar way, syringe and keep close for a time, and reopen the ventilators for the night.

Orchard house.—Since my last notes appeared the trees in this department have made great progress, and the fruit on many of the most forward Peaches and Nectarines is now set. Later kinds, also Plums and Cherries still in flower, will require abundant ventilation when the external temperature is not below 40°, and to prevent disappointment a few minutes devoted to daily fertilisation with a bunch of soft feathers will be necessary. Continue the usual treatment with regard to watering, as dryness at the roots will be fatal, and while avoiding the wetting of the flowers damp the floors and other available surfaces, also the stems of the trees once or twice on fine days, and keep the house dry and cool in damp, dull weather. When the fruit on all the trees is set, let the daily syringing be resumed, aim at a night temperature of 50°, run up 10° by day, and shut up before the sun is off the house where hot water pipes have not been introduced. Commence disbudbing and shortening back where this has been deferred and plenty of fruit has set near the base of the shoots; also thin the fruit where set in triples or clusters, leaving, as a matter of course, an abundance of the finest on the upper sides of the shoots for future selection. Although the house may have been well fumigated before the trees came into flower, greenfly is sure to be present, particularly amongst the Plums, and as these are the first to suffer, another smoking will save much disappointment. As trees in pots now commencing to swell off a crop of fruit cannot be overfed, lose no time in getting them top-dressed with some rich compost consisting of strong loam, good rotten manure, previously dusted with soot, to destroy worms, and twelve per cent. of bone dust. Mix well together in a shed, apply it when tolerably dry, and if any is left over it will improve with keeping. Examine trees which have been planted in the borders, top-dress with half-rotted manure, and give plenty of water at the mean temperature of the house.

Vines.—Assuming that former directions have been followed, the Vines in the latest houses will now be ready for disbudbing. If they have been suspended in a horizontal position get them tied up to the wires before the young growths are too far advanced, syringe regularly until the bunches become prominent, and close with sun-heat at 75°. Attend to disbudbing and tying down in succession houses, and remove all superfluous bunches from free setting kinds as soon as the most compact and best placed can be selected for the crop; fertilise when ready with *Hamburgh* pollen, and thin out the berries when the size of No. 6 shot. When all the bunches have been thinned allow the laterals to extend over vacant parts of the trellis before they are again pinched, give the inside borders a good supply of warm diluted liquid, and add more fresh, but well worked, manure where the surface is not well covered. Keep up a circulation of warm air in houses where Grapes are in flower, and fertilise when the heat has reached the maximum on fine days. Maintain a minimum of 65° for *Hamburghs*, and allow 5° more for Muscats when the weather is mild and air can be admitted with the aid of moderate firing; but on no account abide by these figures when external conditions are unfavourable. Although I do not approve of syringing Vines when in flower, some Grape growers do, and attribute their success to the application of water, which is doubtful, as Grapes that will set with the syringe would, in all probability, set just as well, if not better, without it, provided the roots are in a warm, well-drained border, and sufficient atmospheric moisture to support the delicate organs, is produced by damping the stems and floors on bright days. When the fermenting material has been removed from the inside of the early house, and the berries begin to show signs of colouring, pass the scissors over them for the last time and remove any stoneless

berries where they can be spared, as their presence always detracts from the appearance of an otherwise perfect bunch. Give the borders the final watering with water at a temperature of 80°, and if necessary add a little more short stable manure to keep in moisture and throw off ammonia when the house is closed for a short time every afternoon. Maintain a constant circulation of warm air with moderate moisture where pot Vines are ripening up their fruit, and while reducing the supply of stimulating liquid to the roots see that they do not receive a check by going to the extreme of dryness, and add more covering to the surface roots to prevent the escape of moisture. Get Vines which have been cut back and shaken out, shifted into their fruiting pots as they become ready, plunge in a sweet bottom-heat, and shade slightly for a few days. Train the young canes near the glass, and insure short-jointed growth by giving plenty of light and air. Where spring planting is contemplated April is the best month in which to turn out growing Vines. These should always be planted in internal borders, and the compost should be made warm by the absorption of sun-heat before it is placed about the tender roots. Settle the soil as soon as they are planted by giving a little water at a temperature of 80°; shade slightly for two or three days, and then treat as has just been advised for pot Vines.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

WE are just now planting Cauliflowers out of pots. The cold winds we are now experiencing are even worse than frost, blowing them about terribly; but it is surprising how soon a large breadth may be sheltered if we only set about it in the right way. In my case we use the prunings of shrubs (Laurels), placing a single piece to each plant—a plan which appears to suit them admirably. Some interesting papers have lately been published in THE GARDEN relating to the culture of this vegetable. Mr. Groom's plan of dealing with it and my own are practically the same. Another writer sows the seed in January, and cuts Cauliflowers in May, while Mr. Nesbit sows at the same time and cuts in April. If these two cultivators would send specimens to your office at the dates named, they would be doing us all a service. My spring plants sown in February are now ready for pricking out in cold frames. Outside Mushroom beds should now be bearing good crops. Winds soon dry their surface, in which case they should be watered with lukewarm water through a fine rose. It is important to allow 1 in. or 2 in. in depth of straw to be on the bed while it is being watered, as in that case the water soaks into the bed instead of running away. Late Celery may now be sown outside, also Brussels Sprouts, Savoy, and curled greens, and, above all, do not forget plenty of Parsley. All kinds of Broccoli—except Veitch's Autumn—should be sown later on. My first early Potatoes are planted close under south walls. Three hundred feet have been put in this day. The soil is slightly broken, the Potatoes planted shallow, and a covering, consisting of burnt refuse and sand 3 in. in thickness, is placed upon each set. The variety planted is the true Myatt's—undoubtedly the best of all early Potatoes if £ s. d. is a consideration. Earth up and water sparingly Potatoes in pits, frames, &c. My first we lifted yesterday (March 24). They are not large, but good in quality. Asparagus may be planted directly it begins to shoot. I have a large breadth to plant this season. I shall draw wide drills 3 ft. apart, lay the plants in flat at the bottom, and cover them 2 in. deep with sand and burnt refuse. As regards Seakale, we are now cutting excellent heads from young plants planted last season, over the crowns of which we put a couple of forkfuls of half-rotten leaves. Just now is a capital time to form new beds. I think seedling plants are better than cuttings. Vegetable Marrows and Gherkin Cucumber beds may now be formed by taking out a trench 3 ft. wide and 1 ft. deep. Any old material from Seakale or Rhubarb beds now done with may be

advantageously used with a little fresh material from the stables. Mix up all together, and earth up from the sides; place hand-lights on the top, and sow the seeds at once.

KITCHEN GARDEN.

EARLY KIDNEY BEANS OUT-OF-DOORS.

FEW plants are more tender early in the season than Kidney Beans. In the ordinary open quarters in the vegetable garden it is seldom safe to have them above ground before the middle of May, and in some parts even later than that. Then the crop is rarely ready for gathering until about the end of June or well into July. This is very late for any vegetable so choice as the Kidney Bean to be coming into use, and I dare say many who cannot grow them under glass in spring, from want of accommodation, would like to have them earlier out-of-doors than the times just named. To effect this, one good way at least can be pointed out. Wherever there is a wall facing the south, seed may be sown at once along the bottom of it, and from plants thus raised, pods may be gathered a month or more before they could be otherwise had out in the open. A drill should be drawn 2 in. deep and about 6 in. from the wall. The seed need not be put in too thickly, and a little fine soil should be put over it. As soon as the plants are seen coming through the ground a few branches should be placed in front of them, or a board may be placed so as to shelter them at night, and be removed on fine days. Slugs must not be allowed to eat them, and it will be surprising how quickly and well they will be found to grow. Of course there may be fruit trees against the wall, but there are always spaces between their stems which may be profitably filled up at the present time.

Margam, Tzibach.

J. MUIR.

Salting ground for Carrots.—The cause of "Y. M. T.'s" crop (p. 188) failing is probably the presence of some maggot or the larva of some small fly. I cannot say what effect upon this or upon the Carrot crop a heavy dressing of salt might produce; but, as a probable cure for the evil, I would confidently recommend a good dressing of soot, forked into the soil some time before the seed is sown, also one or two slight dustings of the same when the plants are approaching the stage when they usually begin to fail. I would advise "Y. M. T." to divide the portion of land which he intends to sow into three parts—not necessarily equal parts. Dress one with salt, one with soot, and the other with gas-lime, and report the result.—P. G.

New mode of wintering Broccoli.—This, as recommended by Mr. Riddell (p. 187), is not exactly new, but it is none the less an excellent method for preserving the plants during severe winters, and is less frequently practised than it deserves to be. The old plan of laying the plants down is objectionable, for although it may enable them to survive the winter, it at the same time gives their development such a check as to prevent the production of anything like such fine heads as they would otherwise produce. Planting between the lines or rows of Broccoli a line of Cauliflowers, Cabbages, dwarf Beans, or any other culinary crop which can be cleared away by the middle of October, allows the Broccoli to be earthed well up, as recommended by Mr. Riddell, and tends to preserve the stems—their most vulnerable part—from the effects of intense frost equally well as by laying them down, and at the same time gives no injurious check.—P. G.

Protecting early Potatoes.—On the open borders the growths of some of our early Potatoes are now 3 in. in height. Many elsewhere will soon be in the same forward state, and so long as there is no frost or strong gales they will be all right, but should the weather become unfavourable, much damage would soon be done unless preventive measures are taken. Expensive protectors need not be employed; earthing up will save a great deal. As the young growths are

seen coming through the ground a little of the surrounding soil should be drawn carefully up and over them. As growth proceeds this should be repeated, and little by little the soil may be drawn up until the earthing up is finished, by which time the chances of their being damaged by the weather may be well nigh over. Another simple, inexpensive, and good plan is to place a little evergreen branch against each plant. Spruce, Laurel, or anything similar will do. If fixed so as to hang over the growths a little, much protection will be afforded. Having the growth thrown back and injured by frost is not the only loss likely to be sustained. Plants which have once been checked in this way never produce so abundantly as those which have gone on without stoppage.—J. MUIR, Margam.

Mushrooms turning brown.—"J. D.," who complains of this in THE GARDEN (p. 166), says nothing of the height of his Mushroom house in which his beds are piled four deep in the centre and three on the sides. Occasionally Mushrooms turn brown through any drip or deposit falling upon them from beds over them. But if this is the cause, then the upper beds, unless too near the roof, would be likely to suffer less than the others. "J. D." also spawns at 10° in advance of that generally adopted by the most successful growers. Any excess of heat at any stage of growth is apt to produce the brown condition complained of. Possibly, too, "J. D.'s" Mushroom house is too dry. Six hot-water pipes and three square holes in the roof for ventilation would naturally produce a somewhat arid atmosphere—a condition most unfavourable to the production of good white Mushrooms. The latter need no more air than will reach them in spite of our efforts. Build up the open ventilators at once, and place evaporating pans on the water pipes, or, better still, introduce enough fermenting material to make another bed, and always keep a succession of such material, freed first, however, from rank steam and powerful gases in the house. Thus vapourised and kindly nourished, the Mushrooms will probably come and keep white, instead of being stunted or starved into something akin to leather. However, it must be added by way of caution that an excess of rank steam may also turn Mushrooms brown; and it may also be stated, for the humiliation of the most skillful growers, that at times Mushrooms will insist on turning brown; and, further, that all brown-coloured Mushrooms are by no means bad in quality, though of course they are preferred white.—D. T. FISH.

SHORT NOTES—KITCHEN GARDEN.

Alghur Brussels Sprouts.—I am surprised that Mr. Muir dislikes these. With me they have been excellent, certainly not larger than half the size of a hen's egg, and not one sprout has decayed through damp. When cooked they remain as compact and solid as cricket balls, and are delicious in flavour.—J. L.

Sprouted seed Potatoes.—I have some Magnum B. num Potatoes for seed planted in a wooden floor in a room. I find they have shoots 2 in. and 3 in. long, strong and branching. Had I better rub them off? or plant with them on? They are exposed to the light and I shall not plant for a week, this being a cold, exposed place, and the soil heavy.—W. J. RAWLINGS, Thomas Street, Merthyr Tydfil.

Mushroom growing.—Several instances of successful Mushroom growing have been given lately in THE GARDEN, due doubtless to the mildness of the season, but none of the writers tell us how they succeeded last year. I am afraid that in that hard season a Mushroom bed only 20 in. thick and covered by a layer of hay with an old horse cloth hung in front of it, did not produce the same results. In Mushroom culture a single instance of success is no guide whatever.—J. C. C.

Spring-sown Cauliflowers.—If Mr. Nesbit has sown Cauliflowers about January 20, and cut usable heads from them the last week in April (see p. 187) in an ordinary season, he has accomplished a feat in horticulture which has seldom been equalled. Might I request him to send samples of Cauliflowers to THE GARDEN office during the last week in April grown in the way he describes? As the present season promises to be an early one, it is so much more in his favour.—W. H. DIVERS, Burghley.

SOCIETIES.

ROYAL HORTICULTURAL SOCIETY.

MARCH 28.

At this meeting there was quite a crowd of new and rare plants, amongst which the following were awarded first-class certificates—

ODONTOGLOSSUM PISCATOREI VEITCHI.—A splendid variety, the finest that has yet appeared in cultivation. The flowers are $\frac{2\frac{1}{2}}$ in. across, with the petals and sepals broad and symmetrical. The ground colour is white, on which are heavy bars and blotches of a deep purple-crimson, the crest surmounting the labellum being bright orange-yellow. The plant shown bore half-a-dozen flowers, and was most attractive. From Messrs. Veitch.

MASDEVALLIA SHUTTLEWORTH.—An exquisite little Orchid, growing in dense dwarf tufts, and with spatulate, fleshy foliage. The flowers, borne just above the foliage on slender stalks, are triangular in outline, each sepal being terminated by a long slender tail $\frac{1}{4}$ in. in length. The dorsal sepal of the flower is hooded, of a creamy white, freckled and streaked with violet-purple, while the two lateral sepals are so heavily grained with violet-purple as to appear of a uniform tint. It was shown by Mr. Wolford, gardener to Mr. W. Lee, Downside, Leatherhead, the plant shown bearing five expanded flowers and a bud.

CORYANTHES MACRANTHA.—A remarkably strange Orchid at first sight, reminding one of a Stanhopea, but differing essentially from that genus in form and structure. The most curious part of the flower is the labellum, which partakes of the form of the pouch of a Cypripedium, but poised vertically, so that it is capable of holding liquid. The broad, oddly-formed sepals spread out in a bat-like manner above the lip. The colour of the latter is a deep sanguineous crimson, spotted with white; the sepals are of a pale fawn yellow, copiously spotted with chocolate. This remarkable production came from Sir Trevor Lawrence's rich collection at Burford Lodge, Dorking; the plant shown was furnished with four bulbs and a spike bearing three flowers.

PINGICULA CAUDATA.—A beautiful Mexican plant, having dense rosette-like tufts of fleshy foliage; the flowers, produced singly on stalks about 6 in. high, are $\frac{1\frac{1}{2}}$ in. across, and of a bright rosy magenta hue with a conspicuous white centre, and pencilled all over with a deeper tint. It is much the same as that shown and certificated as *P. Bakeriana*. From Messrs. Veitch.

ODONTOGLOSSUM LEEANUM.—A very distinct and pretty plant, having flowers $\frac{1}{2}$ in. across, with rather narrow sepals and petals, of a bright canary-yellow, copiously spotted with chocolate-brown. The long triangular labellum is whiter than the rest of the flower, as is also the column. Messrs. Veitch.

AMARYLLIS DUKE OF ALBANY.—A magnificent variety, the flowers of which measure 5 in. across; the sepals are 3 in. broad, arranged in an exact triangular manner, and with the petals forming a symmetrical hexagonal flower. The colour is a vivid scarlet-vermilion, with a broad central band running half way up each division. The plant shown bore four blossoms on one spike.

AMARYLLIS THE GIANT with three huge flower-stems a yard or more high, bore altogether seventeen blossoms, which are large and of fine massive form; colour, crimson, feathered and pencilled with white. Both from Messrs. Veitch.

LEEAE AMABILIS.—A remarkably handsome fine-foliaged plant from Boracé. The plants shown were of dwarf growth—only 9 in. high. The leaves are pinnate, with two pairs of leaflets and an odd one. The leaflets are from 3 in. to 6 in. long by 2 in. in breadth, coarsely toothed at the margin. The upper surface is a glossy, metallic green, with a bright silvery band running down the centre of each leaflet; the under surface of the leaves is a vinous purple, a tin also assumed by the young foliage. It will prove a most valuable decorative plant for stoves. Messrs. Veitch.

ADIANTUM VICTORIE.—A new hybrid Maiden-hair Fern raised by Mr. Bause, the finest he has yet produced. It is between *A. decurum* and *A. scutum*, but partaking more of the latter than the former, though quite distinct from both. It is dwarf in growth, not more than 6 in. high, and the fronds are produced in dense tufts. The pinnae are from $\frac{1}{2}$ in. to 1 in. broad, and are of a bright emerald green. It is one of the finest Maiden-hair Ferns we know. Exhibited by the General Horticultural Company from their Aneley nursery.

PRIMULA OBSCURA.—A new Japanese Primrose, in the way of *P. cortusoides*, the flowers being about the same size and shape, and produced in similar dense heads, but the colour is a lovely delicate mauve, rendering it distinct from any other cultivated Primrose. Being hardy, (it promises to become a valuable garden plant. From Messrs. Veitch.

ODONTOGLOSSUM CERVANTESI DECORUM.—A splendid variety, with flowers $\frac{2\frac{1}{2}}$ in. across, with broad sepals and petals prettily marked with concentric lines of chocolate-red around the column, while the heart-shaped lip, 1 in. across, is of a purer white than the other parts, and also finely streaked and blotched with chocolate-red. Shown by Mr. Wolford, gardener to Mr. Lee, Downside, Leatherhead.

HYACINTH DELICATA.—A very fine single variety, the spike of which is massive and dense, and the flowers over 1 in. across; the colour is creamy white, flushed in the centre of each petal with a reddish buff tint.

HYACINTH LEO.—A double sort, with uncommonly large and very double blossoms of a delicate bluish tint. The spike is large and dense.

HYACINTH CHALLENGER.—A splendid variety, with single flowers of a reddish purple hue, with a deeper stripe running through the centre of each petal. The spike is dense, massive, and very fine.

HYACINTH ENCHANTRESS.—A kind with very large single flowers, borne on huge, dense spikes. Colour, a delicate porcelain blue, shaded to pure white towards the centre. All from Messrs. Veitch.

RHODODENDRON AURORA.—A hybrid Javanese variety, with remarkably large blossoms of fine symmetrical form, and of a beautiful, deep, salmon-pink colour. The truss is large, dense, globular.

RHODODENDRON FAVOURITE.—A beautiful hybrid variety of the Javanese group, having large, dense trusses of flowers of a lovely rose-pink, a colour more pleasing than that of any other variety we have seen. Both from Messrs. Veitch.

ANDROMEDA JAPONICA.—A handsome hardy evergreen shrub, thickly furnished with small, leathery, deep green leaves. The white waxy flowers, which terminate the branches, are urn-shaped and produced in great profusion, rendering the plant very attractive. From Mr. A. Waterer, Knapp Hill Nursery, Woking.

PHALENOPSIS STUARTIANA NOBILIS.—A lovely new species in the way of *P. Schilleriana* as regards habit of growth and size and form of flowers. The latter are wholly pure white, except the labellum and lower halves of the lowermost sepals, which are copiously spotted with chocolate-crimson on a fawn-tinted ground. They are $\frac{2\frac{1}{2}}$ in. across, and produced on long, graceful spikes. From the introducers, Messrs. Hugh Low & Co., Clapton.

PRIMULA ACULIS CROUSSET.—A beautiful variety of coloured hardy Primrose, with blossoms 1 in. across and perfectly double, the petals forming a compact rosette of a rich lilac-purple. It is one of the most distinct of double Primroses, and one that is sure to become popular. From Messrs. Paul & Son, Cheshunt.

ROSE HER MAJESTY.—A beautiful new hybrid variety exhibited by Mr. Bennett, of Shepperton. The plants shown bore vigorous foliage, partaking of the character of that of the Tea varieties. The flowers are large, full, and massive, and the

colour a lovely rose-pink, delicately shading off to lighter hue towards the edges.

Miscellaneous exhibits.—Sir Trevor Lawrence contributed, besides the Orchid certificated, *Odontoglossum asperum violaceum*, a variety in the way of *O. Rossi*, but finer and the colours more pronounced; also *Masdevallia Shuttleworthi* xanthochrys, a distinct variety, but, so far as colour is concerned, inferior to the type, particularly the fine form shown on this occasion by Mr. Lee, who also contributed *Odontoglossum Cervantesi roseum*, one of the most beautiful of the numerous forms of this Orchid, the petals and sepals being suffused with a lovely deep rose purple tint; also *O. Chesteroni*, a very fine variety of *O. crispum*, having the chocolate markings of the flowers very heavy and distinct on the pure white ground. A cultural commendation was appropriately voted to Mr. Parr, gardener to Mrs. Russell Sturgis, Givon's Grove, Leatherhead, for two remarkably well grown specimens of *Coeleogyne ocellata*. The plants, growing in 6-in. pans, were over 1 ft. across, and profusely furnished with long racemes of elegant white blossoms conspicuously blotched with orange. A fine plant of the rare *Maxillaria callichroma* was shown by Mr. Salter, gardener to Mr. Southgate, Selborne, Streatham. The flowers are some 3 in. across, with narrow sepals yellow and white, and with the lip bright yellow lined with crimson. A well-flowered plant of *Odontoglossum Rossi majus* came from Mr. D. B. Crawshaw, Sevenoaks. An uncommonly fine example of *Lycaste Skinneri* with a dozen flowers, representing a beautiful pale variety, was shown by Mr. Gaiger, gardener to Mr. T. Taylor Whitehead, Bakewell, to which a cultural commendation was deservedly awarded. It was growing in a large square basket, and was small compared with the number of flowers it bore.

A choice group of new and rare plants was exhibited by Messrs. Veitch, among which were *Cypripedium Mastersianum*, a handsome new species from Java; *Azalea serpyllifolia*, with small white blossoms, otherwise like *A. amena*; *Helinopsis umbellata*, a plant somewhat similar to *Helonias bullata* in growth, but bearing a drooping head of pink flowers; *Adiantum fissum*, an elegant variety of the hardy Maiden-hair Fern, with deep cut pinnae; *Rhododendron Royal Scarlet*, *Triumphans*, both beautiful hybrid varieties; *Phaius Bernaysii*, an Orchid in the way of *P. grandifolius*; *Chionographis japonica*, a singular plant with spikes of feathery white flowers; and *Odontoglossum Andersonianum angustatum*, a variety having heavy blotches of chocolate-brown in the flowers which are more conspicuous than in the original.

Among the *Amaryllis*, besides those certificated were, *Milton*, of very fine form, crimson netted with white; *Indian Chief*, deep crimson; *Princess Beatrice*, vermilion striped with white, fine in form; *Shakespeare*, vermilion, white centre, very fine; and *Meteor*, scarlet, edged with pure white, all of which were superb varieties, a selection from the enormous quantity of *Amaryllis* grown by this firm.

The following new Hyacinths were exhibited by Messrs. Veitch in addition to those certificated. Of single flowered kinds, Mr. Stanley, deep carmine-crimson, spike very dense; *Progress*, very deep violet-blue, large and fine; *Purity*, pure white, spike very dense; *Marguerite*, chalky white flowers, spike very large; *Surprise*, a shade or so lighter than Mr. Stanley, also very fine. *Diadem*, a very curious colour, a carmine shaded with orange-red; *Safrano*, a straw colour, spike dense and massive. The only double besides *Leo* certificated was *Duke of Albany*, a bright carmine flower and spike moderately large.

A variegated-leaved form of *Anthurium Andreanum* was shown by Mr. Wilson, gardener to Mr. Pollett, Farnside, Bickley, which probably will be in better character later in the season. The white-flowered variety of *Myosotis disitiflora* was shown by Mr. Dean, Titsey Park, Godstone, and is, as may be imagined, a beautiful little plant, differing in no way from the original except in

the colour, which is pure. It will no doubt be as much sought for as the ordinary form. A double-spaced *Calla ethiopica* came from Mr. Phillips, The Doodars, Meopham, which, however, was more strange than handsome.

Messrs. Cannell & Sons, Swanley, exhibited a remarkably fine *Cineraria*, called *Victory*, the finest that has yet been shown, the flowers measuring nearly 3 in. across, perfectly circular with overlapping petals, and of a beautiful satiny magenta tint. The same firm also showed cut blooms of *Marguerites*, including the white, blue, purple, and a new golden yellow, very fine. Also a few plants of *Spiræa Thunbergii*, which were profusely laden with their tiny white blossoms, showing to perfection this beautiful shrub.

Mr. Green showed from Sir George Macleay's garden, Pendell Court, Bletchingley, a flowering spray of *Bauhinia stipitata* to show its singular inflorescence, which was like long green strings, produced from the axils of the uppermost leaves. Mr. Green also showed the old *Antholyza bicolor* in fine flowering condition. A group of new seedling *Abutilons* was again shown by Mr. George, Putney Heath, among which those named *King of Roses*, *Compactum Vivid*, and *Scarlet Gem* were particularly noteworthy as being distinct and fine. Mr. Dean, Ealing, showed a new *Primrose* called *Premier*, which bids fair to take the premier position among flowers of its class, being a very decided advance upon the older kinds.

A cultural commendation was awarded to Mr. A. Waterer for a group of well grown plants of *Deutzia candidissima* fl.-pl., a beautiful variety with rosette-like blossoms and short racemes, and borne plentifully on small plants. The colour is snow white, and even when flowering in the natural season the purity of the colour is not marred in the least. It is a shrub that will be much sought for.

Messrs. Paul, Cheshunt, showed a new *Rose* called *Helen Paul*, with flowers of a delicate pink shade; and Mr. Bennett, Shepperton, exhibited besides the variety *Her Majesty* two others called *Lady Mary Fitzwilliam*, a delicate pink variety, and *Earl of Pembroke*, a *Rose* of large and fine form, similar in colour to *Marie Baumann*. Plants of *Gynura aurantiaca* were exhibited by the *Compagnie Continentale d'Horticulture*, Ghent, who state that it is a first-rate bedding-out plant. The leaves are overlaid with a beautiful violet-purple, which gives the plant a handsome appearance.

Promenade show.—At this, the first promenade show of the season, the conservatory presented a gay appearance, chiefly effected by means of magnificent groups of *Hyacinths*. These were contributed principally from various nurseries, and were all of uniformly high quality. Messrs. Veitch & Osborn were the largest exhibitors, each firm showing a group of some 200 plants, all admirably representing the best *Hyacinths* now in cultivation. Lesser groups came from Messrs. Cutbush, Highgate; Messrs. Williams, Fortis Green, Finchley; and a large contributor to the display was Captain Patton, who showed extensive collections of *Tulips*, *Hyacinths*, and choice hardy spring flowers. Besides *Hyacinths*, *Azaleas* and *Rhododendrons* were largely shown, notably by Messrs. Lane, of Berkhamstead, who had some well-flowered bushes of the finer sorts of *Rhododendron*, and particularly of the beautiful *Azalea mollis*, which altogether made an attractive show. An extensive group of miscellaneous plants, chiefly cool *Orchids*, came from Mr. B. S. Williams' nursery, Upper Holloway. There was also a grand collection of *Amaryllis*, including some splendid varieties. The fine new *Inantophyllum Martha Reimers* was shown very finely, and was much admired for its stately growth and handsome flowers. A large group of Persian *Cyclamens* was shown by Mr. Clark, of Twickenham, and constituted one of the chief attractions of the show, the pure white variety being particularly noteworthy. Of *Narcissi*, Messrs. Barr and Sugden had a fine exhibition from their unrivalled collection at

Tooting, and many choice spring-flowering plants were interspersed with the *Daffodils*, which added largely to the display. From Chiswick Mr. Barron sent large groups of *Cinerarias*, *Azaleas*, *Begonias*, and various other plants, which added largely to the success of the show. Mr. Aldous, Gloucester Road, showed two fine bouquets, composed exclusively of *Narcissi*; both were very beautiful and showed what may be done with one class of flowers alone.

Special prizes.—The prizes offered for *Amaryllis*, *Hyacinths*, and *Tulips* were not competed for, there being only one exhibitor in each class. Mr. Little was the only exhibitor of *Amaryllis*, and Mr. Douglas in the other classes. The six *Amaryllis* that Mr. Little showed, which were very good, consisted of *Queen Victoria*, crimson, edged with white; *Stella*, *Orpheus*, *Leah*, large crimson *Hereward*, *Drapeau Royal*, large white pencilled with crimson. The seedling to which the first prize was awarded was *Hercules*, a splendid variety with medium-sized flowers of fine form and of a brilliant vermilion colour. The best light coloured variety was *Orpheus*, a kind with large, well-formed flowers, white, heavily pencilled with crimson. The first prize for a dark variety was given to *Hereward*, a deep red sort. The *Hyacinths* that Mr. Douglas showed were remarkably fine, all with massive spikes. The sorts were *Fabiola*, pink; *Blondin*, pink; *Von Schiller*, red; *King of the Blues*, *Mont Blanc*, *Baron Van Tuyl*, blue; *Grandeur à Merveille*, white; and *La Grande Dussie*, white, all single-flowered varieties. The *Tulips* consisted of admirable examples of *Proserpine*, *White Pottebakker*, *Vermilion Brilliant*, and white *Joost Van Vondel*.

Scientific committee.—Sir J. D. Hooker in the chair.—Diseased plants.—Mr. W. G. Smith reported on the diseased leaves of various plants received from the Earl of Romney, and found they were attacked by various organisms, e.g., *Primrose* leaves by *Oidium primulae*, *Carnation* leaves by *Tylechius*, a nematoid worm, as also by *Puccinia Lychinidæum*; the *Ranunculus* leaves by a leaf-mining larva. *Saragus floccosus*.—Mr. Pascoe exhibited specimens of this beetle from Queensland, attacked apparently by a species of *S. saria* while living.

PLANT LABELS.—Mr. G. F. Wilson exhibited specimens of Boxwood labels steeped in hot paraffin; when unprepared Box labels perish rapidly. Sir J. D. Hooker observed that the paraffin soon becomes decomposed under exposure to the sun. Mr. Lynch also showed some labels made of zinc cleaned by sulphuric acid; also some painted Pitch Pine labels. The question was raised as to what Pitch Pine really is, as it apparently refers to any very resinous kind.

PLANTS EXHIBITED.—*Rhododendrons*.—Mr. Mangles exhibited several hybrids, viz.: *R. cilicium* (female) crossed by *R. Dalhousie* (male), a pink hybrid called *Countess of Haddington*. He remarked that it is impossible to cross them the reverse way. *R. formosum* from Cachar, and *R. Veitchianum* from near Moulmein.—They cross freely. This last, as also *R. campylocarpum*, were received from Mr. Hermann Tucker. *R. Thomsoni* (male) crossed with *R. Fortunei* (female).—In this hybrid Mr. Mangles observed the prepotence of the former in the crimson colour, the flowers being larger and more numerous. *R. jasminiflorum*.—It is remarkable that the Malay species will not cross with the Himalayan. Various interesting hybrids were sent by Messrs. Downie and Laird. Flowers, including *Mesembryanthemum aciniformis*, were sent by Miss C. Mangles from Cannes. Another collection of *Rhododendrons* came from Hon. and Rev. Boscawen. One of considerable beauty, with white unspotted flowers, and named Mrs. Townshend Boscawen, of the arboreum type, had a fine truss, but the foliage was rather poor. *Tulips*.—Rev. H. H. Crew exhibited several *Tulips*.—*T. Celsiana*, *T. Oculus solis* var. *præcox*, *T. platystigma*, and *T. Lantellei*, probably a var. of *T. O.s.*, having narrow edges and a crimson eye-spot. *Doryanthes Palmeri*.—Sir J. D. Hooker exhibited a leaf some 5 ft. long, and a cluster of flowers from a spike 12 ft. in length, bearing a panicle of

flowers 18 in. in length. *Coryanthes macrantha*, exhibited by Sir T. Lawrence, described in the lecture. Mr. Lynch exhibited two fine branches of *Begonia Roezli* from N.-W. America, *Primula carpatia*, having a peculiar odour and resembling the true (Barfield) *Oxlip*; *Asarum caudatum* from California, *Cheiranthus mutabilis* from Madeira, the original wild form of *Cheiranthus*; *Chelid.* (Wallflower), *Hibbertia rheedi*, and *Arctotis aspera* var. *arborescens*, from the Cape.

Lecture.—The Rev. G. Henslow commenced his lecture by calling attention to the differences between the two families *Liliaceæ* and *Amaryllidææ*, the magnificent series of *Hyacinths*, *Tulips*, and *Squills* illustrating the former; while Messrs. Barr and Sugden's series of *Narcissus* of many kinds, *Amaryllis* of Messrs. Veitch, and the specimen of *Doryanthes* from Kew illustrated the latter, easily recognised by the "ovary" being below the flower in the *Amaryllidææ*, but free and within the tube in the *Liliaceæ*. *Dicentra spectabilis*.—Through misspelling the name has been changed to *Diclytra* and *Dieltyra*; but *Dicentra*, meaning "two spurs," is the correct name. Mr. Henslow explained how it is fertilised by bees, which remove the little clapper-like plates and so expose the stamens and pistil on searching the flower for honey. The most remarkable instance of mixed fertilisation, however, was furnished by the curious *Orchid* exhibited by Sir T. Lawrence, called *Coryanthes macrantha*, from the West Indies. In this the labellum is shaped like a boat, but attached at the stern end by a stout bent support, thus forming a powerful spring. The "column," which bears the stigma and anther, projects over the boat, the two having their ends in contact. Two horn-like processes projecting from the column continually secrete water, which is caught by the boat. Insects, such as large bees, are attracted by sweet ridges or wing-like expansions of the basal end of the labellum; the food thus obtained appears to be stupefying or intoxicating; the result is the bees push one another down into the boat; their wings become wetted, so they cannot fly out, but can only escape by crawling along the bottom of the boat and squeezing themselves between the "bows" and the end of the column. The first insect which escapes invariably carries off the pollen masses; but in order to fertilise a flower it must repeat the process, take a second bath, and escape as before, but this time it smears the pollen upon the stigma. Mr. Henslow next called attention to some new hybrid *Rhododendrons*, Messrs. Veitch getting a first-class certificate for some fine hybrids. He observed how in this flower, as in *Pelargonium* and *Gloxinias*, which are irregular flowers in the wild state, are becoming regular under cultivation, and the stamens, instead of inclining downwards or "declinate," spread symmetrically round the petals which are like symmetrically arranged.

LIST OF AWARDS.

Silver-gilt flora medal to Messrs. Veitch, Chelsea, for *Hyacinths*.

Silver-gilt flora medal to Messrs. Osborn, Fulham, for *Hyacinths*, *Azaleas*, &c.

Silver-gilt flora medal to Mr. R. Clark, Twickenham, for group of *Cyclamens*.

Silver-gilt flora medal to Messrs. Barr & Sugden, Covent Garden, for group of *Narcissi*, &c.

Silver flora medal to Mr. B. S. Williams, Upper Holloway, for miscellaneous group of plants.

Silver flora medal to Messrs. Cutbush, Highgate, for *Hyacinths*, *Azaleas*, &c.

Silver flora medal to Mr. H. Williams, Finchley, for *Hyacinths*, *Tulips*, &c.

Silver flora medal to Messrs. Lane, Berkhamstead, for *Rhododendrons*, *Azaleas*, &c.

Silver Banksian medal to Captain Patton, for *Hyacinths*, *Tulips*, &c.

Silver Knightian medal to Mr. S. Ford, Leonardale, Hortham, for collection of *Apples*.

SPECIAL PRIZES.

6 *Amaryllis*.—1st, Mr. Wiggins, gardener to Mr. H. Little, Hillingdon Place, Uxbridge.

Seedling *Amaryllis*.—1st, Mr. Wiggins.

Dark-coloured *Amaryllis*.—1st, Mr. Wiggins.

Light-coloured *Amaryllis*.—1st, Mr. Wiggins.

9 *Hyacinths*.—1st, Mr. Douglas, Loxford Hall, Ilford.

9 *Tulips*.—1st, Mr. Douglas.

ROYAL BOTANIC SOCIETY.

MARCH 29.

THE first spring exhibition of this society, held on Wednesday last, was a most successful one, being more extensive than the corresponding show of previous years. As at South Kensington the day previously, the chief attractions were the spring bulbous plants, such as Hyacinths, Tulips, Amaryllis, &c.; indeed, the two shows, happening as they did so nearly together, had so many features in common, that a detailed account of both is unnecessary. The glorious banks of

HYACINTHS from Messrs. Veitch, Osborn, Cutbush, Williams, and others were in themselves quite beautiful exhibitions, and they displayed the flower to perfection as regards high quality of growth, and represented the cream of the host of the varieties that the Dutch bulb gardens afford. Of course there was the usual percentage of so-called new varieties, but it requires the eye of an expert to detect the difference between the novelties and older kinds. Judging by the fine examples exhibited this year, the present season is a good one for Hyacinths generally.

TULIPS were likewise fine, particularly those in the competitive classes in which Mr. Douglas took the lead, as he generally does at these shows, among amateurs. A fine display in numerous variety was contributed by Captain Patton's gardener, Mr. Boulwood, including several that were considered new, but, be that as it may, they were highly attractive and contributed in no small degree to the importance of the show.

CYCLAMENS were perhaps the chief attraction, at least they won more admirers than any other class, and certainly they were very fine, and alone worth a journey to see. They were all better than we have hitherto seen them, and were simply perfection. This flower was also shown in a magnificent manner by Mr. Smith, of Ealing, whose collection was extensive, containing a rich variety of tints. Other exhibitors made a good display of Cyclamens.

AMARYLLISES were in strong force and of high quality, the principal exhibitors being Messrs. Veitch and Williams, and among amateurs Mr. Little, who grows and shows this flower well, the varieties he exhibited on this occasion being much the same as those at South Kensington. Those from Mr. B. S. Williams were all characterised by that vigour and brilliancy of colour which is so much admired in an Amaryllis, but which unfortunately is apt to be overlooked by hybridists striving for perfect form and large size. Such kinds as Dr. Masters, Leean, Firefly, shown by this firm are, in our opinion, the perfection of what an Amaryllis should be with regard to colour.

STOVE and GREENHOUSE PLANTS were not an important feature in the show, and with the exception of perhaps the collection from Messrs. Peed, were scarcely admissible for exhibition, being much below mediocrity and likewise with the Azaleas, the less said about them the better, though some well flowered small plants were shown from the Norbury Nursery, Streatham.

DEUTZIAS were particularly fine, particularly those from Mr. Whitbourne's garden, at Loxford Hall, which were veritable "pinks of purity," the huge plants being covered with snowy-white bloom.

HARDY PRIMULAS, only shown by one exhibitor, were not remarkable, though some admirable examples of the snowy-white *P. viscosa nivea* indicated skilful culture, and showed what a lovely little plant it is in a good cultivator's hands. The hardy herbaceous plants included good specimens of *Pulmonaria virginica*, *Dielytra spectabilis*, *Primula rosea*, and *Anemone ranunculoides*.

LACHENALIA TRICOLOR was shown uncommonly well by Mr. Eason, who grows this common greenhouse bulbous plant better than we have seen it elsewhere. He showed on this occasion a dozen large plants, completely furnished with flower-spikes, and were certainly a great attraction.

ROSES in pots were conspicuous only by their absence, a remarkable fact, as usually they are seen finely at these spring shows. There were, however, some excellent cut blooms, notably the *Maréchal Niel* from Messrs. Cranston, of Hereford, and Mr. Runsey, Waltham Cross. The lovely *Madame Falcot*, too, was, like the *Maréchal*, shown to perfection considering the season, and her beauty seemed to be admired more than any other.

LILIES OF THE VALLEY were an excellent class, and grand pottals came from Mr. Williams, of Finchley, which were better than usually seen, even at exhibitions. *Narcissi*, too, were excellent, and were shown numerous; but, however well shown, they are not particularly striking or effective.

RHODODENDRONS from the Berkhamstead Nurseries, Abutlons from Mr. George, Putney Heath, Cinerarias from Hillingdon Place, some fine *Dielytras* from Capt. Patton's garden, all aided in making the exhibition what it was.

GROUPS OF PLANTS of a miscellaneous character came from Messrs. Veitch, which had a large sprinkling of showy Amaryllis in them, as did also that from Mr. B. S. Williams, which likewise contained a fine selection of fine foliaged plants and Orchids in flower. A similar group from Mr. Bull, Cacti from Mr. Bolter, and Orchids from Mr. Philbrick's garden at Bickley, including a *Cymbidium eburneum* with twenty flowers, made an attractive feature.

New plants.—These, as usual, were numerous. From Messrs. Veitch came *Chionographis japonica*, *Lea amabilis*, *Croton Cranstadii*, *Angreum Chailluanum*, *Phalenopsis tetraspis*, *Heliconia umbellata*, *Cypripedium Argus*, *Odontoglossum Pescatorei* Veitchi, *O. Andersonianum angustatum*, *Vriesia chrysoscepha*, *Rhododendron Favouite*, *Columnnea Kalbreyeri*, and various new Amaryllis and Hyacinths. Mr. B. S. Williams contributed *Cologneya Parishii*, *Amaryllis Leean*, and Dr. Masters, *Alcacia Chelsoni*, *Adiantum Lathomi*, *Davallia fœniculacea*, *Dieffenbachia majestica*, *Zygopetalum Clayi*, *Asparagus plumosus nanus*, &c. From Mr. Bull were *Odontoglossum facetum*, notable, *Pescatorei album*, *gloriosum album*, and *aurum*, *Halli nigrum*, *Wilkeanum album*, *baphicanthum*, *Masdevallia triangularis*, *Dracena fragrans variegata*, *Asophila Rebecca*, and *Cypripedium insigne aurum*. The Horticultural Company of Ghent showed plants of *Gynura aurantiaca*. Of these the following were certificated:—

BOTANICAL CERTIFICATES were awarded to—*Dendrobium Falconeri giganteum*, a superb variety of a lovely Orchid, differing in its larger growth, finer flowers, and more intense colour. One of the finest of all *Dendros*. Messrs. Veitch.

CYPRIPEDIUM CALURUM, a hybrid variety between *C. longifolium* and *C. Sedeni*, which latter it much resembles, but is different in colour. Messrs. Veitch.

COLUMNNEA KALBREYERI, a handsome foliage plant with long and broad leaves of a metallic green on the upper, and vinous purple on the under surface. Messrs. Veitch.

ASPARAGUS PLUMOSUS NANUS, a most elegant plant of dwarf growth, and with feathery foliage of a bright green hue. Messrs. Veitch.

ODONTOGLOSSUM LEEANUM, *PRIMULA OB-CONICA*, *PRYNGUILLA CAUDATA*, *ODONTOGLOSSUM PESCATOREI VEITCHI*, *LEEA AMABILIS*, also shown by Messrs. Veitch, received botanical certificates, and are alluded to in the report of the Royal Horticultural Society's meeting.

ADIANTUM LATHOMI, a graceful Maiden-hair Fern of robust growth, with elegant fronds of a pale green. From Mr. B. S. Williams.

DIEFFENBACHIA MAJESTICA.—A noble fine foliage plant, with ample leaves of a deep green heavily blotched with light green. Mr. B. S. Williams.

ZYGOPETALUM CLAYI.—The handsome hybrid Orchid described in our columns last week. Mr. B. S. Williams.

DAVALLIA FœNICULACEA.—An elegant Hare's-foot Fern, having large, broad fronds, finely cut and gracefully arching. Mr. B. S. Williams.

ASPARAGUS PLUMOSUS NANUS, alluded to above also. From Mr. Williams.

ODONTOGLOSSUM HALLI NIGRUM.—A form with very deep coloured sepals and petals, rendering it handsomer than the ordinary kind. Mr. W. Bull.

O. PESCATOREI ALBUM.—Remarkable for having flowers of a spotless white, except the yellow centre. Mr. Bull.

DRACENA FRAGRANS VARIEGATA.—A handsome variety, having the broad, recurving foliage banded longitudinally with greenish-yellow. Mr. Bull.

ALSOPIHIA REBECCÆ.—A tree Fern with beautiful spreading fronds, much divided and of glossy green. Mr. Bull.

PHALENOPSIS STUARTIANA NOBILIS.—The beautiful Orchid alluded to in Tuesday's report. From Messrs. Low & Co.

HOYA GLOBULOSA.—A species having small whitish blossoms with pink centres, produced in large, dense globose clusters which are very handsome. From Messrs. Cranston & Co.

FLORICULTURAL CERTIFICATES were awarded to

CYCLAMEN WHITE GEM, CRIMSON GEM, STRIATA, TINTED GEM, ROSE QUEEN, and EMILY LITTLE, all very beautiful varieties, to which allusion has been made previously. All from Mr. Little.

ABUTILON BRILLIANT and EMPEROR.—Two beautiful varieties, particularly the latter, which has large, finely formed flowers, of a rich plum colour. From Mr. George, Putney Heath.

AZALEA MAD. DE GREVE.—A variety with unusually large flowers of full and fine form, and of a beautiful salmon pink, spotted with crimson. From Mr. Little.

HYACINTH CHARLES DICKENS, Surprise, Duke of Albany, and Challenger, all of which were mentioned in Tuesday's report. Messrs. Veitch.

AMARYLLIS DR. MASTERS, a variety remarkable for the intense brilliancy of colour combined with the fine form of the flower and constituting the perfection of a fine Amaryllis. Mr. B. S. Williams.

AZALEA MR. F. COBERT.—A beautiful variety with medium-sized flowers, semi-double, and of a glowing carmine-crimson, borne profusely on small plants. Mr. Todman, Clapham Common.

RHODODENDRON FAVOURITE, a lovely hybrid variety of the Japanese section, having large trusses of fine flowers of a most delicate rose-pink. Messrs. Veitch.

AMARYLLIS DUKE OF ALBANY and THE GIANT, both shown by Messrs. Veitch, and alluded to above.

PRIMULA ACALUIS CROUSSETI PLENA, shown by Messrs. Paul, and mentioned in Tuesday's report.

CYCLAMEN 'DUKE OF ALBANY', a very fine variety with large and finely-formed flowers of a beautiful colour. Mr. Odell.

MYOSOTIS DISSITIFLORA ALBA.—The white form of the Forget-me-not alluded to above. From W. Dean, Tisbury Park, Godstone.

LIST OF AWARDS.

12 Stove and greenhouse plants (open).—1, Messrs. Peed & Son, Norbury Nursery, Streatham; 2, Mr. G. Wheeler, gardener to Lady Gokhale, Regent's Park; 3, Mr. Butler, Streatham; 4, Mr. Gibbs, St. Dunstan's, Regent's Park.

6 Greenhouse Azaleas (amateurs).—1, Mr. Wiggins, gardener to H. Little, Esq., Hillingdon Place, Uxbridge; 2, Mr. Wheeler; 3, Mr. Butler, Epsom.

6 Chinese Primulas (nurserymen).—1, Messrs. Peed & Sons; 2, Messrs. Cutbush, Highgate.

6 Chinese Primulas (open).—1, Mr. Williams, Fortis Green, Finchley; 2, Mr. Wiggins; 3, Mr. Butler.

6 *Primula* (open).—1, Mr. Douglas.

12 Pots Tulips (nurserymen).—1, Mr. Douglas; 2, Mr. Boulwood, gardener to Captain Patton, Alpha House, Regent's Park; 3, Mr. Butler, Epsom.

12 Pots Tulips (amateurs).—1, Messrs. Osborn; 2, Messrs. S. Hill; 3, Messrs. Cutbush.

12 Pots Narcissus (open).—1, Messrs. Osborn; 2, Mr. S. Hill; 3, Finchley; 2, Mr. Wiggins; 3, Mr. Butler.

6 Amaryllis. —1, Mr. Wiggins; 2, Mr. Butler.

12 Lachenalia. —1, Mr. H. Eason.

6 Hardy Herbaceous Plants. —1, Mr. Douglas

6 Deutzias (open). —1, Mr. Douglas; 2, Mr. Wiggins; 3, Mr. H. Evans, North Hill, Highgate.

12 Cyclamens (amateurs). —1, Mr. Wiggins.

6 Pots of the Lily of the Valley (open). —1, Mr. H. Williams; 2, Messrs. Gregory and Evans, Sidcup; 3, Mr. Douglas

12 Hyacinths (amateurs).—1, Mr. Douglas; 2, Mr. H. Eason.
12 Hyacinths (nurserymen).—1, Messrs. Cutbush; 2, Messrs. Osborn; 3, Mr. Hill, Forest Gate.

MISCELLANEOUS CLASS.

Messrs. J. Veitch & Sons, Chelsea, large bronze medal for group of new plants; silver medal for Hyacinths.
Mr. E. S. Williams, Upper Holloway, silver medal for group of new and rare plants.
Messrs. Osborn & Sons, Fulham, small silver medal for group of Hyacinths and Tulips.

Messrs. Carter & Co., High Holborn, large bronze medal for group of Hyacinths.
Mr. E. B. Smith, Ealing, small silver medal for group of Cyclamens.

Mr. H. Williams, Finchley, large bronze medal for Hyacinths, &c.
Messrs. Barr & Sugden, Covent Garden, certificate and prize for cut Narcissi.

Mr. F. Wiggins, Hillingdon Place, Uxbridge, silver medal for Cyclamens and Cinerarias.
Mr. T. Odell, Hillingdon, certificate and prize for group of plants.

Mr. George, Putney Heath, certificate and prize for Abutilons.
Mr. J. Boulwood, gardener to Captain Patton, Regent's Park, certificate and prize for Hyacinths, &c.

Messrs. Cutbush & Sons, Highgate, small silver medal for collection of Hyacinths, &c.
Mr. J. Runsey, Walkham Cross, large bronze medal for collection of cut Roses.

Messrs. Gregory & Evans, large bronze medal for collection of Pelargoniums.
Messrs. Cranston & Co., Hereford, certificate and prize for cut Roses.

Messrs. Lane & Son, Great Berkhamstead, small silver medal for collection of Rhododendrons.
Mr. J. Sims, gardener to Mr. Philbrick, O.C., Oldfield, Bickley, for *Cymbidium eburneum* and *Sophronitis grandiflora*.

EPIGEA REPENS AT COMELY BARK.

I OBSERVED IN THE GARDEN of the 4th ult. that you mentioned that you wished to have some flowers and buds of the Epigea sent to you in order that you might give us the benefit of a good coloured plate of the plant and its flowers and buds. Well, one day last week, having an hour or two to spare in Edinburgh, I went down to see Mr. Fraser's nursery at Comely Bark, which I had frequently seen noticed in THE GARDEN, and when the foreman of the herbaceous department was showing me the large collection of fine old hardy herbaceous plants there, I noticed a very beautiful white-flowering creeping plant which completely filled a large hand-glass about 2 ft. square. "What plant is that?" said I to the foreman. "Oh," said he, "that is the Epigea repens." When the top of the hand-glass had been lifted off I saw, growing with the greatest luxuriance, one of the most beautiful and delightful of hardy plants. The leaves completely covered the ground inside the hand-glass, and the ends of the branches bore clusters of lovely white flowers which had the most delicious scent imaginable, something like that of the Hawthorn, but far sweeter. I brought home with me a large plant of the Epigea, and it is at present flowering in a bed of damp peat under the shade of some Fir trees in my garden here. For the present I have the plant covered with a hand-glass until it recovers the effect of the transplantation, but I mean to try to get it to do with me ultimately without the protection of a hand-glass. The flowers do not carry well, and fall off very easily. The shoots I sent you had far more flowers upon them when they were growing on the plant.

G. MUIRHEAD.

Paxton, Berwick-on-Tweed.

Nicotiana affinis.—I have been much interested in the discussion that has appeared in THE GARDEN respecting this plant. If the flowers are gathered in the evening, or during the night when open and placed in water, they will remain open and keep in good condition for some days; therefore, on this account it is a plant worth growing. If the flowers are in a plant worth growing, dresses care must be taken to keep the stems from touching them, because a quantity of saccharine matter exudes from the stem and the base of the flower which it is most difficult to remove. The flowers withstand the heat of a room for a considerable length of time, and they have a powerful perfume. I can quite corroborate Mr. Callington's opinion of the seed having become conta-

minated, because I have certainly four distinct colours of flower among about 150 plants. Some that finished flowering on the uppermost branches I have cut down, and they are throwing up a good succession of blooms. I intend shortly to turn them out into the borders.—Wm. CHRISTY, *Malvern House, Sydenham*.

PLANTS IN FLOWER IN BERWICKSHIRE.

THIS has been a most extraordinarily early spring here, and my alpine plants, &c., are coming out fully a month before their usual time. The following is a list of plants which are now in flower on my rock border:—

<i>Alyssum saxatle</i>	<i>Narcissus minor</i>
<i>Aenone ap-nina</i>	<i>moscatus</i>
<i>Julgens</i>	<i>obvallaris</i>
<i>hortensis</i>	<i>odoratus rugulosus</i>
<i>temorosa rosea</i>	<i>primus</i>
<i>rauncuoides</i>	<i>rugulosus</i>
<i>Chionodoxa Lacillie</i>	<i>Telamonius</i>
<i>Corydalis bulbosa</i>	<i>plenus</i>
<i>Draba aizoides</i>	<i>Onophodes verna alba</i>
<i>cuspidata</i>	<i>Orobus vernus</i>
<i>Doronicum caucasicum</i>	<i>Polygala Chamæbuxus</i>
<i>Erythronium Dens-canis al-</i>	<i>purpurea</i>
<i>bum</i>	<i>Primula Auriculata</i>
<i>purpureum</i>	<i>cortusoides</i>
<i>roseum</i>	<i>helvetica</i>
<i>Theris sempervirens</i>	<i>marginata</i>
<i>Muscari botryoides</i>	<i>minima</i>
<i>b. album</i>	<i>rosea</i>
<i>Narcissus bicolor</i>	<i>Fulmonaria virginica</i>
<i>biflorus</i>	<i>Sanguinaria canadensis</i>
<i>incomparabilis</i>	<i>Saxifraga crustata</i>
<i>plenus</i>	<i>Schivereckia podolica</i>
<i>lobularis pleaus</i>	<i>Soldanella alpina</i>
<i>major</i>	<i>Triteileia uniflora</i>
<i>maximus</i>	

I have not included in this list any of the plants mentioned in the one I sent to you in the end of February, many of which are still in bloom, such as *Primula pulcherrima*, *Anemone blanda*, &c. My Narcissi are particularly fine. They have not been disturbed since they were planted three years ago. I observe that Narcissi do not show in all their beauty until they have become fully established in one spot for a year or two. *Primula minima* is most lovely with me at present, the flowers being very large for the size of the plant, and of a rich rose lilac colour with a white eye. I also send you a spray or two of a dwarf double-flowering Almond, which has delighted us for the last two or three weeks with its beautiful flowers. It is growing in the shrubbery in good soil, close to the edge of the Grass near my house. I also send you a flower of *Polygala Chamæbuxus purpurea*, also a flower of *Primula cortusoides* from a seedling to show how early it is with me. The old plants are not yet out.

GEORGE MUIRHEAD.

Paxton, Berwick-on-Tweed.

Liming gardens.—My garden is planted all over with Currant and Gooseberry bushes, 5 ft. apart, and single rows of Potatoes between. I have put 18 cwt. of newly slaked lime on it, equal to 1½ tons. per acre, the size of the garden being 1½ rods. Is this quantity at the end of March dangerous to fruit trees and Potatoes? What is the usual and maximum quantities recommended generally per acre? I have been told 4 tons on arable land in farms. The land is stiffish; sub-soil, clay and marl.—J. N. D.

Gas heating.—Seeing in THE GARDEN a discussion about hothouse furnaces, I should be much obliged if any of your correspondents could give me information on the following subject: I have a boiler of the ordinary character which heats a greenhouse fired with coke. Owing to its position and other circumstances I should like to know whether such a boiler could be fired with gas. What would be the best form for arranging the gas burners? whether the gas should be mixed with air on the Bunsen principle? and what would be the comparative cost of coke and gas?

In order to give an idea of the boiler I may mention that it consumes about 30 tons of coke a year. The cost of gas is 3s. 3d. per 1000 ft.—ALLERTON.

Steeping Maiden-hair Fern fronds.—With reference to an article I have read in THE

GARDEN of March 18, signed P. Grieve, allow me to remark that I once was given a bouquet with a good deal of *Adiantum* in it, and I found it lasted for a great many days and looked quite fresh. This being different from my general experience of that species of Fern, I made inquiry about it from the friend who had given me the bouquet, and found that the fronds had been steeped in a deep dish of water (at least deep enough to cover them entirely) for some hours before the bouquet was made up, and this plan I find keeps the fronds fresh for many days if attended to before being put in a vase of water with flowers.—G. W. HAMILTON, *Hampton, Balbriggan, Ireland*.

Fatal accident from blasting tree stumps.—A fatal accident occurred the other day on the estate of Mr. Joseph Gillott, the well-known pen maker, at Solihull, near Birmingham. Some large trees on the estate having been blown down by the recent gales, it was decided to remove the stumps by blasting. Several stumps had been destroyed in this way, Mr. Gillott, with Mr. Sidney Mitchell, a Birmingham solicitor, and his son, assisting at the operation. A splinter from one of the largest trees struck Mr. Mitchell on the head, dashing out his brains. The deceased gentleman was standing at the time near Mr. Gillott, who had a narrow escape, even at a distance of 52 yds. from the charge.

Polyanthuses.—J. de F.—Your seedlings, though pretty as all Polyanthuses are, represent but poor variety of what is termed the "fancy" type.—D.

Pætræa volubilis.—The large specimen of this beautiful shrub in the conservatory at the Regent's Park Botanic Gardens is just now in perfection, being completely covered with long racemes of violet and mauve blossoms.

A good garden hose.—My experience as one who has tried several kinds of hose, is that for garden purposes there is none like the red rubber. Its peculiar properties are, that being of alight quality rubber, it never gets hard, nor does it crack; the linen ply inside, although as fine as a handkerchief, is strong, and as a practical test I learn that some thousands of feet made years back now stand 100 lbs. hydraulic pressure.—E. PASCOE WILLIAMS, *Essex Villa, Westcombe Park, Blackheath*.

Night soil (G. L. G.).—It should be mixed, as in Moule's earth closets, with dry loam or peat charcoal. It then becomes deodorised.

Names of plants.—A. Green.—1, Rue (*Ruta graveolens*); 2, Thyme (*Thymus vulgaris*); send others when in flower.—G. J.—*Luzula sylvatica* (Great Wood Rush); 2, variegated leaved form of *Luzula sylvatica*; 3, next week, *Anemone ranunculoides* var.; 4, *Homogone alpina*.—R. V., *Exeter*.—1, Rose in Rose Polyanthus; 2, *Pachysandra procumbens*; 3, *Anemone ranunculoides*.—Mac.—*Corydalis bulbosa*.—R. H., *Dorset*.—1, *Berberis Darwinii*; 2, send in flower; 2, *Francoa scotchifolia*; 4, *Kerria japonica fl.-pl.*—J. P. Vanda Parish, *Odontoglossum cirrhosum* (fine form), *O. polyanthum*, *Phalenopsis rosea*, *Epidendrum* (species).—J. Wood.—Apparently a species of *Vaccinium*, but there is not sufficient material to define the species.—J. Crook.—*Begonia glaucophylla splendens*, *Notallia cerasiformis* (white shrub), *Callistemon rigidus* (red), *Salvia alba-cornea*.—Embley.—*Narcissus incomparabilis*.—Young Gardener.—1, *Genista canariensis*; 2, *Sedum carneum variegatum*; 3, *Cotyledon fulgens*; 4, send in flower.—Canon S.—Queen Anne's Daffodil, *Narcissus odoratus fl.-pl.*—E. Hart.—We are unable to name the Rose you send.—F. I. *Southcote*.—*Narcissus incomparabilis fl.-pl.* (Orange Phoenix); 2, *Kerria japonica fl.-pl.*—Embley.—Apparently *Pyrus floribunda*, but please send better specimens.—F. Dillon.—*Narcissus moschatellus*.—Barnet.—1, *Hibbertia dentata*; 2, *Acacia Ricinosa*; 3, *Tecoma australis*; 4, *Kennedia* (see d. flower); 5, *Adenocaulon nitida*; 6, *Acacia longifolia*; 7, send in flower.—J. S.—*Acacia nigricans*.—Cahore.—*Pelargonium* sp.; send better specimen.—S.—*Nicotiana fragrans*; the plant known in gardens as *N. affinis* is probably the same species.

COMMUNICATIONS RECEIVED.

J. G.—J. L.—R. M. W.—E. R. G.—W. W.—P. F. G.—R. N.—H. C.—E. H.—J. C.—A. G.—W. J. M.—G. W. S.—P. G. J.—D. T. F.—E. J. N.—J. S.—C. S. G.—S. P.—P. and H.—J. F. H.—C. J. E.—L. E.—G. W. G.—T. H.—J. G.—E. B. W.—G. D. H.—J. F. C. B. S.—W. L. J.—B. Mac.—J. S. C.—T. S. R.—T. F. J.—T. C.—J. L. G.—K. D.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

INDOOR GARDEN.

NOTES ON CAMELLIAS.

CAMELLIAS which have not been reported for two or three seasons will require that attention as they approach the end of the blooming season. Many nostrums are propounded for the growth of Camellias, and growers succeed fairly well with very dissimilar composts. Continental growers commonly employ forest leaf-mould for the rearing of small trade plants, and where it can be got of the right quality it is used alone. For larger plants it is usually mixed with either loam or some kind of peat. With this forest soil cannot be obtained of sufficient age. I have found that leaf-mould is unsuitable for plants in large pots and tubs becoming in the course of years sour and quite inert towards the centre of the ball, but for trade plants in small pots (6-in. ones) it succeeds admirably. One of the composts which I have found to answer well for large plants exposed to an arid summer air is a mixture of one-half loam, of a rich, fibry character, a little sand, tolerably fine broken charcoal, and one-half decayed wood earth, that is, refuse wood-chips, shavings, and similar material, including a good portion of bark which had lain together for three or four years. The finer portions were screened from the coarser, the latter being again thrown into a heap, to remain till still more decayed. This material has all the properties of leaf-mould minus the disadvantage of getting soured in after years. It also contains scarcely any worms or injurious insects. Worms are a great annoyance to the Camellia grower, and to prevent future trouble all plants in pots should be plunged in their summer quarters in beds of clean sand or fine gravel, or in lieu of these coal ashes; but if growing in wooden tubs it will be enough if these are placed on such materials. Cultivators often give Camellias too much drainage, thus rendering the soil incapable of retaining moisture enough for the wants of the plants. One large crock or oyster-shell over each hole in the pots or tubs with about 1 in. to 2 in. of coarsely broken pot-herds over them, covering the whole with a layer of fibry loam or peat, will be found sufficient.

Cuttings.—Now is a good time to insert cuttings of either the single or double sorts for growing on to form specimens. The single kinds, both white and red, and Camellia Waratah are exceedingly showy plants either for rooms or conservatories when well bloomed. When grown from seed the single sorts grow freely enough, but they are more spindly than plants from cuttings, although for grafting purposes they grow to the thickness of a goose-quill in two years. The double kinds grow just as well on their own roots as worked, although for trade purposes they are usually grafted on the single ones. Cuttings root freely if cut just before growth naturally commences. They should be taken off about three joints in length, cutting them through just under a joint, and leaving the bottom leaf. It greatly assists the formation of roots when a piece of rind is sliced off for about 1 in. at the butt end of the cutting. A close atmosphere of from 75° to 80°, with from 85° to 90° bottom-heat will suit them admirably. Pure sand may be used for striking the cuttings without any earth at all under it, only they must be taken out of it as soon as they have developed a good portion of roots; or sandy earth may be employed, which will allow of their remaining in it for a longer period if required to do so. The young plants succeed very well if planted out in a box or pit over a partly exhausted hotbed—if consisting of leaves so much the better. In this they will make more growth than in pots. Shading, with syringing morning and even-

ing, will be required on sunny days for three weeks, when they must be gradually inured to the full sun, without the lights. Young plants require a plentiful supply of water during the growing period, and an occasional watering with weak manure water, soot, or horn-shaving water; the latter is the finest thing for giving a dark green colour to the foliage of Azaleas, and also Oranges. The single ones must be potted the following March if intended for grafting purposes; the others may remain for another year in the box, if not too crowded, or they may be transferred to another frame in the same month, and the same course of treatment pursued for another year, when they must be potted off.

Grafting may be performed in spring, with either one-year-old wood just before growth begins, or in summer with scions of half-ripened firm wood. The stocks should be in their second or third year, and one year of that time established in pots. An easy way of managing the grafting is to excavate a partially exhausted hot-bed, having say, a three-light frame on it, taking out the fermenting material to the bottom and then placing a two-light frame inside of it. The operator has then a double glazed air-tight case in which to put the plants as they are grafted. Shading must be very carefully attended to and occasional slight syringings given, but no ventilation will be needed for three weeks; about that time after grafting some plants will be showing signs of growth, and must be finished to more airy quarters, and all should be removed off under six weeks. The grafts must be shaded from bright, or indeed any direct, sunlight for some days after removal, but must at the same time be gradually accustomed to cooler treatment, so as to get the wood matured while there is heat enough to do it. I have found *C. peoniflora*, *coccinea* and *p. rosea* very good and strong growers for stocks. SYLVESTRIS.

Hebeclinium ianthinum.—This stove plant was at one time more frequently seen than it is now. I recently saw it in good condition in the conservatory at Barton Grange. It is evidently not a difficult plant to grow. It is propagated by cuttings of the half-ripe shoots. It has abundant leafage, and flowers freely from the points of the shoots, producing large heads of blossom of a beautiful mauve colour. In form the flower-head bears considerable resemblance to that of an *Ageratum*.—J. C. C.

The Guava (*Psidium Cattleianum*).—We have this deliciously scented plant on the back wall of ainery. Its flowers, which are somewhat like those of the Myrtle, are very plentifully produced on the little branchlets, which, if allowed to grow loosely by just fastening the main shoots to the wall, have a very pleasing appearance, and while in bloom fill the house with fragrance. It is a plant of easy culture, growing freely in a mixture of turfy loam and peat, and, above all, is a plant seldom attacked by insect pests; therefore it can be safely kept in ainery or Peach house. With us it is quite at home in ainery that is kept quite cool up to Christmas, when on applying heat it comes into flower at about the same time as the Vines. —JAMES GROOM, *Linton*.

Pittonia argyrea and **Gymnostachyum Verschaffelti**.—These plants are both interesting and useful for indoor decoration, and their culture is of the simplest description. They are grown largely here in various temperatures, soils, and situations on and under stages in various houses. They are growing luxuriantly in sandy soil and in shingle, and on rockwork in the fernery. Being, however, moisture-loving plants, they delight in the free use of the watering-pot and syringe. They should never be allowed to become dry. On the back walls in the fernery here they form quite an imposing feature intermixed with Ferns and *Lycopodiums*, and we also use them largely for table decoration, and in conjunction with Mosses, Ferns, *Lycopods*, and flowers. When I plant them on the stages I select rooted pieces, if possible, and place a little sharp sand round

them and some shingle on the top to keep them firm, or I use wooden pegs if they can be made to enter where required for the time being until the plants have become well rooted, and I well water with a rosed watering-pot to settle both sand and plant. Being rambling plants, when placed on stages between other plants they well repay any extra care and attention bestowed upon them.—J. CLARKE.

Clerodendron Balfouri.—The freedom with which this plant flowers, and its marvellous contrast of colour, make it a lovely object either in the form of a specimen or as a climber. It is by no means fastidious as to soil, growing freely in the ordinary mixture used for stove plants, and a rather restricted root space appears to add to its floriferousness if kept well supplied with moisture at the root. The most forward plants of it will now be showing flower, and whether required for purposes of decoration or exhibition, they should be fastened to a trellis, or in whatever form they are desired to take. When in bloom they may be removed to a cool house or conservatory, where they will last long in beauty. After cutting young plants, viz., cut out all the old flowering wood and train the young strong growths up under the glass on single wires or strings, giving them all the sunlight they can bear without scorching. Abundance of liquid manure, clear tepid water, and copious syringings to keep down red spider constitute their main requirements until growth is complete, when they must be kept rather dry at the root until the buds begin to move in spring. They must not be kept in a lower temperature than 50° when at rest; in fact, ordinary stove temperature suits them perfectly.—J. GROOM, *Linton*.

Solomon's Seal forced.—Amongst the numerous hardy plants now grown for forcing Solomon's Seal is one of the best, as not only does it respond readily to heat and grow quickly, but when placed in a cool house, it lasts a long time in beauty. In a cut state, too, it is unrivalled. The proper way to manage Solomon's Seal to have strong roots for forcing is to plant them out in prepared or deeply dug soil in some open, sunny spot in the garden. If this is done, the plants spread rapidly, and may be dug up every autumn after the tops die down, when the strongest pieces can be easily selected for potting and the weaker laid aside to make a fresh bed. This is our practice annually, and we always have a good stock for the winter and spring, from which we draw a pot or two at a time as they may be required for forcing. When done with in the spring, if not wanted to augment the supply by adding to the beds, they are planted out in the foreground of shrubberies, or in the wild garden, where in early summer they are always welcome, and look quite at home, especially on banks or raised mounds amongst Ferns, with which they associate well.—S. D.

Two good stove climbers.—All things considered, I find no stove climbers to surpass the beautiful scarlet *Passiflora princeps* and the equally well-known *Allamanda Schottii*—the one with long racemes of flowers that hang from the roof in graceful festoons, the other producing large trusses of bright yellow flowers for at least six months in succession. These two plants are, moreover, but little infested with any of the insect pests that are generally so troublesome to stove plants, and climbers in particular, and they do not require any great amount of root-space. We have grown them for years in medium sized boxes by giving frequent top-dressings, and large quantities of water during the growing season. Where, however, creepers are required for permanent root ornaments, it is best when the house is built to make brick compartments for them under the stages, or where they can be out of sight and not occupy space that might be utilised for pot plants. The best way in which to train these plants is to run the shoots at full length on wires stretched horizontally about 1 ft. from the glass. Securely fasten now all the main shoots to them, and for the rest of the season allow the

growth full liberty to grow in its own way, merely cutting out exhausted pieces. These two creepers look well mingled together either in the stove or as cut flowers for indoor decoration.—J. GROOM, *Linton*.

Camellias in pots.—Small plants which have flowered early should now be re-potted. Some recommend peat and sand for Camellias, but I find that good fibrous loam and peat in equal portions, with sand sufficient to keep the mixture porous, suits them best. The soil should not be broken too fine, and the drainage should be carefully attended to, as they suffer much from stagnant water. Nor should they be allowed to get too dry; after potting they should be removed to an early vinery or forcing pit to make new growths and form their buds for early flowering. They should be syringed morning and afternoon with tepid water. When they have matured their growths, which may be easily known by the stiff feel of the young foliage, they should be gradually hardened off by removal to a cool house, where they may remain until the following season, or they may be placed out-of-doors, plunging the pots in coal ashes. If the latter plan is adopted, it would be advisable to bring the plants into a cool house about the 1st of September. If blooms are required very early plants should be removed from the greenhouse about the middle of September and placed in a forcing pit or stove, where the temperature should not rise above 60°. On fine days syringing is necessary; it enables the bloom to expand, and keeps the foliage clear of insects. We have had Camellias in flower here for the last four months; the varieties are numerous, but one of our best is the old Double White.—T. BRIEN, *Gilttown, Newbridge*.

Culture of the Poinsettia.—Mr. Carlton's note (p. 157) will show what an accommodating plant this is. I find that it is not particular as regards soil, having grown it in various composts, from peat to strong loam and manure. Thorough drainage is the principal point, as anything approaching stagnation soon causes the roots to decay and the foliage to become yellow and drop. While at rest, a temperature somewhere about 50° with just sufficient water to prevent the wood from shrivelling will suit Poinsettias. Early in May they should be placed in a vinery or forcing house, where they can be syringed and encouraged to break. If it is desirable to have tall plants, one or two shoots may be left to each plant at the base of the previous season's growth; the rest may be cut off, inserted singly in 8-in. pots, and plunged in a good bottom heat, where they will soon emit roots. When well established they should be removed to a lower temperature and placed close to the glass, to prevent their becoming drawn, as the more stocky they are the finer heads they produce. When nicely rooted, pot them on as may be required, never allowing them to become pot-bound; water carefully and syringe overhead morning and evening. I prefer growing them in a cold frame during July and August, and planting them out early in September in a Melon house furnished with bottom-heat, which I consider essential to their successful cultivation. It may be necessary to grow some in pots, which I would plunge in bottom-heat when housing time arrives, as thus treated they certainly retain their roots better, and also develop finer heads.—GEORGE POTTS, *Surbiton Hill*.

SHORT NOTES—INDOOR.

Myrtle Jenny Reichenbach.—Where Myrtles are desired for flowering in a small state, this Continental variety should be obtained, as it blossoms freely when but a few inches high. It belongs to the small-leaved section, is neat and compact in growth, and when in the shape of small bushes densely laden with flowers it forms a pretty little shrub.—A. P.

Drosera capensis.—Can any of your readers inform me how this is propagated? It does not throw off from the root like other *Droseras*. If the head is taken off, will it strike? If so, when and how should this be effected?—A. LEAROLD, *Sherwood House, Huddersfield*.

Azalea mollis in pots.—I know of no plants of modern date that can excel this class of Azaleas as early spring-flowering plants in pots. Both blooms and trusses are very large; indeed, more like those of early *Rhododendrons* than Azaleas. They are invaluable for forcing, and anyone who desires showy plants for this purpose should lose no time in making their acquaintance. Having grown them for the last four seasons, I am able to speak of their value from experience. I like them so well, that I intend to give up forcing those belonging to the Ghent type. We have had them in bloom during the last two months, and hope to enjoy their beauty up to the end of April. Some established plants of them which have been in pots three years have been truly grand—literally covered with blossoms; they were brought into bloom in a house in which the heat was never over 45° at night. To this temperature they were transferred from cold pits in the end of December, and they were in bloom from five to six weeks, while other kinds put in and treated in the same way took almost double the time. Some of the shades of colour are so delicate that every one admires them, preferring them even to those of the Indian kinds, and the plants only require to be put a very short period under glass. The names of a few of the best of them are Alphonse Lavallée, Baron E. de Rothschild, Charles François Luppis, Chevalier A. de Reali, Comte de Gomer, Comte Papadopoli, Comte de Quincey, Consul de Ceresole, Isabella Van Houtte, Ernest Bech, M. Charles Van Wambeke, and W. E. Gumbleton. Many more might be added, but this is enough for beginners.—JOHN CROOK, *Farnborough*.

Imantophyllum miniatum and its varieties.—The *Imantophyllum* is one of our best plants for spring flowering, either in the greenhouse or conservatory. It throws its flower-stems well up above the foliage and forms fine heads of orange-scarlet blossoms, which last long in a fresh state if kept in a cool house. If forced into flower, the plants when taken into a cool house must be placed out of the reach of cold draughts. The heads of bloom resemble, as regards arrangement, those of the well-known blue *Agapanthus*, so often seen growing in pots and tubs on terraces in summer grouped with *Hydrangeas* and similar plants. The leaves of the *Imantophyllum* when in good health are stiff and leathery; in fact, the plant, even when out of flower, is by no means unattractive. The soil that suits it best is a good, strong, fibry loam, broken into pieces about the size of Walnuts, mixed with about one-third good fibry peat, a portion of leaf-mould, and plenty of sharp silver sand to keep the whole open. In this the plants will grow and flower satisfactorily in the same sized pots for two or three years together after they have attained a certain size. During the time they are making their young growths they may be fed with liquid manure from the farmyard well diluted with water. I have also used artificial fertilisers as soon as they have commenced to show their flower-spikes. There are several different varieties of this plant in cultivation, some of them having flowers larger and brighter than the type. Of these the variety known as *superbum* is one of the best; it has large heads and the colour is deeper than that of the type. Sometimes the flower truss measures 14 in. across. Some varieties which I have grown are inferior to the type in every respect, producing thin, narrow leaves, slender stems, and small flowers of a pale yellowish colour, with green lines often running down the petals. For this, where it exists, some of the best varieties should be substituted.—WM. CHRISTISON.

Plant mimicry.—Cases of this are from time to time recorded, but, as a rule, the mimicry is confined to similarity of appearance, and rarely, so far as I know, to scent. I wonder why so many plants mimic the Hawthorn in this respect. We have long had the fact of the Cape *Fondweed* with its flowers smelling like Hawthorn, but I find that in some of the *Megasea* section of *Saxifraga* the flowers have a similar perfume. The

same remark applies to *Nuttallia cerasiformis*, and lastly—just discovered—to the curious flowers of *Hakea epiglottis*.—T. SMITH, *Newry*.

ORCHIDS.

PRUNING ORCHIDS.

I SEE it stated by Mr. Spyers in a contemporary that "the idea that three or four-year-old bulbs are useless to the plants is ridiculous" in the case of *Dendrobiums* of the noble type. "The more old bulbs they have behind the leading growths the stronger the young growths come away," says the same authority, but he has nothing to show for his statements, and I feel confident that by-and-by Mr. Spyers will change his mind. There are too many things taken for granted in practice, and this idea of the good of old Orchid bulbs to the young growths is one of them, in the case at least of *Dendrobiums* of the kind spoken of and some others, and probably all Orchids. It is quite time to protest against dogmatic utterances on such topics, for the pages of the horticultural papers furnish evidence enough that we may all have something to learn. Mr. Spyers is not able to say, apparently, that he ever made the experiment to prove whether old bulbs are of any value to the plant or not. I should be perfectly willing to take two of Mr. Spyers's *Dendrobiums* of equal strength and size, subject one to the pruning process and leave the other with its old bulbs, and guarantee to return them to him at the end of the season in a condition that would defy him to tell the difference between them. It is only by proving matters practically that one can be sure. I, a few weeks ago, sent a good bulb of *Dendrobium primulinum* to Mr. Burbridge that he might see the effects of cutting away the old bulbs, the stumps of which were still quite visible, and here is his comment on the subject: "The idea of cutting away the old bulbs seems wrong in theory, but certainly the example you send seems right. I cannot imagine a stronger or more floriferous bulb from such a wee plant under any system of no-pruning or let-well-alone culture." We have many plants to which this description would apply, and increasing confidence has made us cut away all old bulbs from all the plants now. We have a fine plant of *Dendrobium primulinum* several inches high from which the old bulbs were cut clean away when the young bulb was just showing. They are now nearly as thick as my finger and as green as Leeks. Most of the bulbs were out in flower to send to London; and it is a great advantage to be able to cut them instead of the flowers individually in this way, as they can be set up to far more advantage in glasses.

Four-year-old bulbs of *D. Wardianum*, of which Mr. Spyers speaks, are worse than useless, and seeing that the plant blooms on the stems of the current year I am surprised to hear of an experienced cultivator keeping the old bulbs for such a length of time and to no purpose. There is not the least reason to suppose that Nature provides the old bulbs for the purpose of supporting the young growths, but probably to sustain the plant under the vicissitudes of climate and situation under which it grows. "So full of life are old bulbs," says Mr. Spyers, "that they are capable without one atom of root of sustaining the next year's growth." Very likely; but what sort of growth is it? and do the young growths not produce any roots on their own account to support themselves? Further, does not this prove that these old bulbs must derive their fullness of life from the roots at the expense of the young growths beyond instead of "passing it on," as Mr. Spyers supposes, to the leading growths, and of which there is no proof? It is also said that the old bulbs might break from the base, which is quite true; but cutting them down does not hinder them from doing this. I should state that I cut the old bulbs down within 1 in. or so of the bottom, and that portion continues to live for years, and is sufficient to sustain the latest buds; the roots do the rest. I noticed that specimens sent to exhibitions are pretty well thinned out of

their old and useless bulbs, but in some that I have seen where they were left three or four years old, as Mr. Snyers recommends, there was something like three old withered stems to every one in flower, which tended greatly to mar the appearance of the specimens. Mr. Snyers also states that the use of old bulbs is still more apparent in the case of *Dendrobies* of the racemose section. I admit it is best to be cautious about pruning these, not only because one never knows whether the older healthy bulbs may flower or not, but, nevertheless, I would like him to see a number of plants here of *D. densiflorum*, *chrysotoxum*, *thysiflorum*, and the like that have been most severely treated by the knife since we got them from Burnah, a few years ago. As an example we have one plant in a 6-in. pot at present with six bulbs, the tallest of which is 17 in. in length, and the least 10 in., with flowers on every spike, and ranging from $3\frac{1}{2}$ in. to $\frac{1}{2}$ in. in circumference at the centre of the bulb. From this plant nine old bulbs have been cut away, including those that were cut off when imported four years ago. Every year the bulbs have been larger, and the latest formed are probably four times the size of those that came on the plant. The weight of them makes the plant top-heavy. The old stumps can still be counted, and the nine named do not include those removed this spring. I cut all off that turn yellow and lose their leaves. Perhaps in this case I have pruned too severely, but the results are such as I describe. Will Mr. Snyers explain how the vigour has been increased? I doubt if he ever saw stronger or more floriferous bulbs for their age. My own impression is that the removal of the old stems promotes the vigour of those left by sending the sap forward into the next bulb. We have some physiological grounds for supposing this to happen, but none for the belief that the old bulbs contribute to the vigour of the young ones by leaving them.

With this, I send one of the plants experimented upon by me, an indifferent imported variety of the racemose section, but which serves the purpose of experiment as regards growth. It is from a $4\frac{1}{2}$ -in. pot. Ten old bulbs, stumps still visible, have been cut away during the past four years, and six are left, the largest of which is $17\frac{1}{2}$ in. long to the top of the leaves, and the nodes are proportionally numerous—the test of fertile growth, according to Mr. Snyers. Every year the bulbs have increased in size over the previous year in each break or in the nodes also, and the present growth is probably at least three times as strong as the bulbs that were imported, a number of which were cut away at the first potting. The roots also show the vigorous constitution of the plant. J. S. W.

[With the above came a four-year-old imported racemose *Dendrobium* from a $4\frac{1}{2}$ -in. pot, showing the annually increasing vigour of the bulbs. Ten old bulbs had been cut off yearly in succession, the stumps of the last being still visible. The plant, which had six bulbs, seemed to be in a most vigorous condition, the bulbs being well filled out, furnished with from five to eight nodes, and the foliage deep green, thick, and ample; altogether a very fine plant considering its age and the small sized pot in which it had been grown.]

NOTES ON ORCHIDS IN FLOWER.

AMONG the infinite variety of beautiful Orchids now to be seen in the houses of the Royal Exotic Nursery, Chelsea, the following are among the most noteworthy, being out of the ordinary stamp of Orchids to be seen in gardens at this season:—

Angreum Ellisi.—This is one of the most remarkable Orchids now in flower. From the base of a tuft of oval lance-shaped foliage are produced pendulous spikes about 1 ft. in length, on which are thickly arranged numerous small blossoms, having spurs about 5 in. in length. The sepals are of a delicate buff red, while the petals and lips are pure white, colours which, combined with the long buff mouse-tail-like spur, render the plant a most remarkable object. This, so far as we

know, is the first instance of this Madagascar Orchid flowering in cultivation, but, judging by the large quantities of it that have been imported and sold, it will not be so rare as hitherto. Another rare *Angreum* in flower is *A. Chaillunum*, which has peculiarly formed blossoms with attenuated sepals and petals all of ivory whiteness.

Aerides vandarium much resembles the species we described a short time ago in the Victoria Nurseries as *A. cylindricum*, and the two plants so nearly resemble each other that they might well be considered synonymous. *A. vandarium* as flowering in this nursery has terete foliage like that of *Vanda teres*, and bears from the leaf axils on the upper part of the stems solitary flowers on stalks some 2 in. or 3 in. long. The blossoms are about $\frac{1}{2}$ in. across, singular in shape, having a projecting spur 1 in. or more in length. The colour is a pure transparent white.

Dendrobium Rhodostoma is a charming Orchid—one of the numerous hybrids that have originated in this nursery. It is a cross between *D. Huttoni* and *D. sanguinolentum*. The flowers are about the size of those of the last named parent, having the petals and sepals of wax-like texture and pure white, stained at the tips with a rich amethyst, while the shallow labellum is also white, edged with amethyst, and with a conspicuous streak of yellow in the centre. The flowers are produced at the extremities of the long slender pseudo-bulbs, and last long in perfection.

D. Ainsworthi.—The more one sees of this lovely Orchid the more is one convinced that it will rank high in the list of important garden plants. Here it is flowering splendidly in suspended pans and pots. Some of the plants, though small, have long stout bulbs completely wreathed with bloom, particularly at their extremities, where the flowers form a dense cluster. Of the two forms of this *Dendrobe* we think the one with the white sepals and petals and the richly stained lip is the best in point of beauty. *D. splendidissimum*, a similar hybrid to *D. Ainsworthi*, is likewise beautiful in flower.

D. Falconeri giganteum proves itself to be one of the finest of all *Dendrobies*. It is so distinct from the ordinary *Falconeri*, and so similar to an intensely rich tinted *Wardianum*, that an ordinary observer would fail to see the distinction. The flowers are about the size of those of an average *D. Wardianum*, and marked in the same way, but the colours are much more intensified than in the finest *Wardianum* we have seen; moreover, it possesses this character, and an important one too, that the blossoms remain in perfection three times as long as those of *Wardianum*. In growth it seems to be intermediate between the typical *Falconeri* and *Wardianum*. It is one of the best of all the *Dendrobies* now in flower at this nursery.

D. cucullatum giganteum is without doubt one of the most delicately beautiful of all Orchids, but it is seldom that the true plant answering to this name can be met with, and especially in such fine flowering condition as it is in here. It may be best described as being in the way of *D. primum*; in fact, the large variety of this species known as *giganteum* often has to do duty for it in a not a few collections. The two plants are, however, very distinct, as may be seen at a glance. The variety under notice has large flowers thickly arranged in two rows on drooping stems. The sepals and petals are of a delicate lilac tint, and the labellum, which is shallow and shell-like, measures over 2 in. in diameter, and is of a faint primrose-yellow, contrasting charmingly with the other parts. The flowers possess a delicious Primrose-like fragrance, which adds greatly to its value.

D. Wardianum album is a very distinct variety, differing from the original only in colour, the blossoms being pure white with the exception of a blotch of dull yellow at the inner base of the labellum.

Other noteworthy *Dendrobies* in flower are *D. albo-sanguineum*, a beautiful species rarely met with in bloom, the colour of the large showy blossoms being a creamy buff, with two heavy blotches of deep crimson-lake on the labellum—*D. thysiflorum*, *D. Farmeri aureum*, *D. Wardianum*, *D. crystallinum*, and a particularly fine group of the Rhubarb-scented *D. macrophyllum* and its giant variety making the East Indian house quite gay. The wonderfully fine collection of *Vandas* and other East Indian Orchids is now commencing to bloom, and they already make a fine display, especially some huge plants of *V. suavis* and *tricolor* with their numerous varieties.

Cypripediums.—The chief among these are the beautiful hybrid varieties that have been raised in this nursery, several of the finest being in flower. The now well-known *C. Sedeni*, a hybrid between *C. longifolium* and *C. Schlimi*, has dangerous rivals in two other hybrids also raised by Mr. Seden; these are *C. porphyreum* and *C. calurum*, both much in the same way as *C. Sedeni*, but each possessing its peculiar characteristics. The finest of the pair, in our opinion, is *C. porphyreum*, the flowers of which are of a beautiful clear colour, without the faintest suggestion of green in the outer sepals, such as is sometimes seen in *C. Sedeni*. The white, too, in the flower is purer, and the flower altogether superior. It is between *C. Schlimi* and *C. Roezli*. *C. calurum*, a cross between *C. longifolium* and *C. Sedeni*—itself a hybrid—is much closer related to *Sedeni* than *C. porphyreum*, therefore not so remarkable. *C. marmorophyllum* is a very handsome variety, a hybrid between *C. barbatum* and *C. Hookeri*. It possesses the characteristic marbled foliage of the latter with the large and bold flowers of *C. barbatum*, which, moreover, have some of the colour of *Hookeri* infused into them. It is a striking plant, and one that at once arrests attention. *C. vernixum*, a cross between *C. insigne* and *C. Argus*, is likewise a handsome variety, exactly intermediate between the two parents, the spotting of the lateral sepals, so marked in *C. Argus*, being transmitted to the progeny in a striking manner. *C. Mastersianum* is a new Javanese species, which is not only handsome, but distinct from all the rest. In foliage it is scarcely distinguishable from *C. Harrisianum* and quite as luxuriant. The flowers, borne on stout purple stems 1 ft. or more high, are some 3 in. or 4 in. across. The dorsal sepal is greenish margined with creamy white; the lateral sepals have marginal rows of black spots on a surface flushed with purplish pink, while the pouch is of a deep fawn colour. It will, no doubt, prove a valuable plant from which to obtain some fine hybrids. Other *Lady's Slippers* in flower are *C. niveum maculatum*, a form with the whole surface of the flower profusely freckled with violet on a waxy white ground; *C. Druryi*, *C. Lowi*, *C. concolor*, and *C. Laurenceum*, one of the handsomest of *Cypripeds*, having large bold flowers in the way of *C. barbatum* and beautifully mottled foliage.

Odontoglossums include a rich variety of kinds, some of which are extremely rare, such, for instance, as the Veitchi variety of *O. Pescatorei* and *O. Leeanaum*, both alluded to last week. Among others are numerous forms of the *O. luteo-purpureum* section, two of which, *O. Halli luteoglossum* and *O. radiatum*, are very handsome. *O. Andersonianum angustatum* is likewise an extremely fine *Odontoglossum*, having heavily blotched flowers on a white ground. Others include crowds of *Odontoglossums*, *Masdevallias*, among which we noted *M. xanthina* (Wagner), and *M. Chelsoni*, the pretty hybrid between *M. Veitchi* and *M. amabilis*.

Miscellaneous Orchids in flower include *Chysis bracteata*, *Limnophila*, and *Chelodan*, all the cultivated kinds in the genus, all of which are very handsome; *Epidendrum Pseudelidendrum*, with tall slender stems, terminated by clusters of emerald green flowers, having brilliant vermilion lips—a most striking combination of colour; the new *Phalaenopsis tetraspis*, with pure white blossoms an inch or more across; *Phaius*

Blumei var. Bernaysii, similar to *P. grandifolius*; *Spathoglottis Lobbi*, with pretty canary-yellow blossoms, resembling some of the *Moth Orchids* (*Phaenopsis*); *Oncidium concolor*, which will shortly be masses of golden yellow; *Epidendrum aurantiacum*, with flowers similar in colour to *Ada aurantiaca*, and very showy; and *E. macrochilum album*, represented by a fine specimen with several flower-stems. W. G.

NEW AND RARE ODONTOGLOSSUMS.

THE following are among the most noteworthy of the species and varieties now in flower in the Odonoglossum houses at Mr. Bull's nursery, Chelsea: Of the handsome *O. Halli*, there are two very distinct forms named *leucoglossum* and *nigrum*. The former is characterised by the labelum being for the most part white instead of yellowish brown; the latter by the whole flower being several shades darker in tone than in the ordinary form. So distinct is *nigrum*, that it was one of those selected at the last show at Regent's Park as worthy of a certificate of merit. Both are handsome and worthy additions to the group to which they belong. *O. faetum* is likewise a handsome and distinct variety, differing from all the others of the luteo-purpureum section in the singular arrangement of the markings, which consist of large and minute blotches, the latter congregated at the base of the sepals in the form of nebulae. The ground colour is yellow, that of the markings a chocolate-red. Among the crowds of forms of *O. gloriosum*, two have been singled out as worthy of varietal names on account of their distinctness. One called *aurum* has the ground colour of a warm yellow, spotted copiously with brownish red; the other, named *album*, has a white ground colour. These two represent the extreme forms of this variable species so far as the tone of the blossoms is concerned. Another form of *O. gloriosum*, named *nigro-pictum*, is even more distinct than either of the foregoing, as the markings are darker and much more pronounced. *O. Wilckianum album* has large, attractive flowers with a whitish ground colour, heavily blotched with chocolate-red. *O. notabile* is a new and entirely distinct variety and very handsome. It appears to be related to *O. crispum*, though quite distinct from any form which we have seen. The flowers are large, the sepals and petals moderately broad and of a rich yellow colour, conspicuously blotched with chocolate-red. The plant bears a long arching spike of about a dozen flowers, and is highly attractive. A very singular variety of *O. crispum* called *mirabile* is worthy of mention; its peculiarity lies in the markings, which at the base of the column radiate in a star-like manner about $\frac{1}{2}$ in. up the middle of each of the five sepals, an arrangement we have never before observed among the numerous varieties of *O. crispum*. Another Odonoglossum in flower worthy of note is *O. anceps*, apparently a variety of *O. maculatum*, having unusually deep markings on a yellowish ground. These, among the hosts of commoner types of the genus, give an additional interest to the Orchid houses at this nursery. W. G.

Origin of *Cypripedium insigne* Chantini.—We have received through Mons. Godefroy-Lebeuf from Mons. Chantini the following account of the origin of this Lady's Slipper: "I brought," says M. Chantini, "from London some length of time ago (the date I cannot precisely give) a considerable quantity of strong tufts of *Cypripedium insigne* that had just been imported. I began to cultivate them, and soon had a large number of healthy plants. Among them one showed a flower perfectly distinct from the others. This I pointed out to Mons. Bertrand, who at that time took great interest in Orchids. Mons. Bertrand bought the plant from me—apothful. He propagated it, and sent it out under the name of *Cypripedium Chantini*. All the others proved to be of the *Cypripedium insigne* type. It is from the potful sold by me to M. Bertrand that all the plants of *Cypripedium insigne* Chantini have been raised which are now in commerce."

Orchids in flower at Grove Lea, Middlesborough-on-Tees:—

<i>Acerides odoratum</i> Warnei	<i>Dendrobium nobile</i> Pari-hi
<i>Angulosa Clowesi</i>	<i>Pierardi</i>
<i>Brassia verrucosa</i>	<i>latifolium</i>
<i>Cattleya citrina</i>	<i>primulinum</i>
<i>Mend illi</i>	<i>giganteum</i>
<i>Warscewiczii</i>	<i>puchellum</i>
<i>Cologyne ciliolata</i>	<i>thyrsoidum</i>
<i>Cypripedium barbatum</i>	<i>transparens</i>
<i>caudatum</i>	<i>Epidendrum macrochilum</i>
<i>longifolium</i>	<i>album</i>
<i>niveum</i>	<i>vitellinum majus</i>
<i>villosum</i>	<i>Lycaste aromatica</i>
<i>Dendrobium albo-sanguinum</i> (in 10-in. basket, with twenty-fourling growths and forty spikes, very fine)	<i>Skinneri</i>
<i>chrysotoxum</i>	<i>Odonoglossum hastilabium</i>
<i>crassinode</i>	<i>grandiflorum</i>
<i>creatae</i>	<i>Roelzii</i>
<i>Dalhausianum</i>	<i>album</i>
<i>de siiforum</i>	<i>Rosii majus</i>
<i>Falc-neri</i>	<i>Oncidium altissimum</i>
<i>flumbarium</i>	<i>ampliatum majus</i>
<i>oculatum</i>	<i>cuculorum</i>
<i>Freemant (very fine)</i>	<i>conigerum</i>
<i>lituiflorum</i>	<i>flexuosum</i>
<i>macrophyllum</i>	<i>fuscatum</i>
<i>giganteum</i> (the flowers measure $\frac{1}{2}$ inches across)	<i>Kramerianum</i>
	<i>Weitonii</i>
	<i>Phalaenopsis amabilis</i>
	<i>Schilleriana</i>
	<i>Saccolabium ampullaceum</i>
	<i>Trichopilia suavis</i>
	<i>Vanda texae</i> (seven flowers on spike yearly)

—JOHN FOSTER.

Ionopsis paniculata, when in flower as it now is at Kew, is the embodiment of elegance and delicacy. In growth it is insignificant, but from the bulbs is produced a long slender stem naked and thread-like at first, then spreading out into a broad panicle, each tiny branchlet of which carries a small blossom. The lip is the most conspicuous part of the flower, being broad and flat like that in *Oncidium flexuosum*; the colour is of the most delicate mauve, gradually intensified towards the centre, which is a deep rich purple. It is grown at Kew in the cool Orchid house, where it seems to thrive well.—W. G.

EDITOR'S TABLE.

RHODODENDRON THOMSONI.—Mr. Ryan sends us from the gardens at Castlewellan, Co. Down, a head of this fine deep-crimson-flowered shrub, which is hardy there in the open air. A bush of it bears thirty expanded trusses. He says that Himalayan *Rhododendrons* are much earlier than usual this year.

WHITE MIGNONETTE.—A boxful of this new variety from Mr. W. Balchin, Hassock's Gate Nursery, Keymer, shows what a fine kind it is for cutting from, being quite different from any other Mignonette. The flowers are white, and show a tendency to become proliferous. We have heard a good deal about this Mignonette, but had no idea it was so good. We should like to see its effect in the open air.

POLYANTHUSES AND PANSIES.—From Mr. Caudwell, Wantage these come in rich variety and very good. The Pansies for the time of the year are large and highly coloured. Among the Polyanthuses are some beautiful varieties, such as *Crimson King*, *Jupiter*, *Sutton*, *Charlotte Jones*, *Queen of Whites*, *Cowslip Cloth of Gold*, and the curious *Galligaskins*. One of the finest double white Daisies also comes from Mr. Caudwell, together with a selection of *Cinerarias*, examples of an excellent strain.

WHAT a number of beautiful bushes of the Plum and Cherry order open at this time of the year! We are all familiar with the most showy ones, but many exist in the northern world which are not yet in cultivation, often somewhat less showy than those commonly grown, but not the less beautiful. *Cerasus praemorsa* is one of those which Mr. Stevens sends us. Among

the *Spiraeas*, *S. mollis* is full of flower. It is very soft in its plummy racemes and delicate in odour. *Prunus triloba* and the Chinese Pear are as good as usual.

DOUBLE NARCISSUS CERNUUS.—One of the most exquisite Daffodils that has come to us this season is one that the New Plant and Bulb Company send us under this name. It differs from most other double Daffodils in the cup only being duplicated, and this is entirely filled with creamy yellow segments, forming quite a rosette. The outer row of petals is as in ordinary Daffodils. This must be a very uncommon Daffodil, and we hope it may be easily increased. The colour is a uniform primrose-yellow.

TULIPA GREIGI.—This gorgeous Turkestan Tulip from the New Plant & Bulb Company's nursery at Colchester is the finest we have seen this season, the flowers having more the appearance, by their brilliant hue, of the large Oriental Poppy than of a Tulip. Anyone desirous of producing a brilliant effect in their open borders in early spring could not do better than plant this fine Tulip largely, especially as it has proved itself perfectly at home in our English climate, and can now be obtained in quantity. It is interesting to observe the variation as regards foliage in this Tulip, some forms having the characteristic streaks of purple on the green ground, and others being quite devoid of markings.

SPRING FLOWERING SHRUBS.—The fine spring has, perhaps not quite to the benefit of the flowering shrubs, encouraged them to open earlier than usual, and we have a charming bouquet from Mr. Stevens. The flowers are not, on the whole, quite so bold as usual, but sweet and welcome. Maule's Japan Quince is very fine with its curious red; no doubt it will some day break into varieties like *P. japonica*. The various forms of that are a great gain, but the fine red of Maule's makes it as indispensable as any of them. *Malus floribunda* is already in bloom, and will, we hope, not be less free and brilliant than usual. *Spiraea prunifolia fl.-pl.* is full of flower at the same time as the snowy *Mespilus*.

BEAUTIFUL SPRING FLOWERS from the New Plant and Bulb Company include the pretty *Erythronium giganteum*, with straw-coloured flowers, and *E. americanum*, with canary-yellow flowers and beautiful marbled foliage—both valuable spring flowers. Burnat's *Fritillaria* (F. Burnat) is really a handsome flower, more decided in colour than many, being of a rich vinous purple and beautifully chequered with a lighter hue. The form, too, is elegant, being a perfect drooping bell. Moggridge's *Fritillaria* is likewise handsome. It is about the same size, yellow on the exterior, the inside of the bell copiously freckled with purple on a yellow ground. A curious twining species (*F. cirrhosa*), from Japan, though more curious than beautiful, is, nevertheless, an interesting plant, as is also *F. ruthenica*, which is sent with it. Both these species seem to possess the power of twining by the curious hook-like appendages at the tips of the leaves.

PERIWINKLES.—For a long time I have seen nothing prettier than various bunches of well flowered Periwinkles of different kinds and colours sent by Mr. Christison, of The Rookery Gardens, Bromley Common. Periwinkles are among the plants some of which manage to find a place for themselves almost everywhere, but few persons ever take the trouble to grow them so that they may flower well. The late Dr. Moore used to be proud of his collection of the

different varieties of the small species at Glasnevin. Mr. Christison's bunches are equally well grown, and most delicate and charming in colour—each kind bunched by itself. There is a good white and a rich purple. Lately in Dorsetshire I was shown a mossy tomb with a small railed garden around it, and was told that there was not a day in the year in which a flower was not to be gathered from the little graveyard garden. This was partly accounted for by the presence of the larger Periwinkle trailing about the railings. These plants are excellent for the wild garden, but, as before remarked, the essential thing is to place them so that they will really flower well, and to this end the old "mats" one sometimes sees are not perhaps the best. The herbaceous kind is an interesting addition, though the evergreens are the best.

DOUBLE NARCISSI.—It is with great pleasure I have received a bunch of fine double Narcissi from Capt. Patten. In the old days of English gardening, judging from the illustrations in Parkinson and others, double Daffodils of a fine kind would appear to have been common. In the dark days of flower gardening, which came not very far from our own day, those flowers were no more seen, and single ones beyond the common kind were rare enough. One of the pleasant signs of change is the re-appearance of these fine double Daffodils, showy, hardy, and free-growing, as many of them are. Capt. Patten's flowers include the old Butter and Eggs, and several having the same mixture of colours, but distinct, also the handsome large white and very pale yellow double kinds—double, but withal good in form, bold and broken in outline. Growers of hardy flowers should look after the finer and more distinct double Narcissi.

ROSE GARDEN.

GRAFTING ROSES.

I OBSERVE that Mr. Hobday (p. 157) gives very good and clear instructions concerning the mode and time of grafting Roses. To those about to do so, I should feel inclined to give *Punch's* famous advice to those about to marry, viz., "Don't;" and yet I was once an enthusiast in grafting, as some of my remarks in THE GARDEN prove. My zeal was somewhat cooled by experience, and reduced to zero by the candid advice of one of the largest growers in the kingdom—graft to sell, but bud for permanent effect. And yet it is by no means obvious why a grafted plant should prove less durable than a budded one. For Roses take so well to the Brier, Manetti, and other stocks that they have literally become one. The union looks as good and complete between the scion and the stock as it is in the case of Apples and Pears. And yet experience proves the fleeting character of the life of grafted Roses. What say the Rose readers of THE GARDEN and our Rose Canon—Hole? How long has any of his grafted Roses lasted? and are they true grafted plants, or plants that have merely drawn their temporary sustenance from the stock until they had time to strike root from their crowns, and thus become to all intents and purposes cuttings. And yet not quite that either, for grafted plants, worked, potted, and grafted so low as to root independently into the soil, live shorter lives than proper cuttings. The foreign roots and matter of the stock seem to work against longevity. How they do so is by no means obvious. Can it be that the two sets of roots are first rivals—always unequally matched? and that the speedy breakdown and final death of the Rose is the natural result of the contest between them? If so, yet this will by no means account for the fugitive character of the lives of so many grafted Roses that are not allowed to form roots of their own to grow parallel with those of the

stock's. Be all this as it may, it may almost be accepted as an axiom that budded Roses are far longer lived than grafted ones. And that being so the fewer we graft and the more we bud the better as a rule. The chief reason, probably, is that in budding dwarf Roses, the plant speedily becomes all Rose. The union thus becomes more perfect, the life of the plant more homogenous. And yet there is a peculiar fascination about grafting Roses. Skillfully performed and with good materials, the scions may be in flower in three months or so from the time of grafting, and as Mr. Hobday points out, Briers grafted in February may be blooming Roses in June and respectable plants by September. But budding, though slower, yields more permanent, and therefore better, results. After all these Brier roots, Mr. Hobday writes of, need not be wasted. Inserted as cuttings they will grow into budable stocks by July, and the buds then inserted will fill up throughout the winter while remaining usually dormant, and will yield show blooms the next June. But in such subjects as the Rose, immediate results are of far less importance than permanency of beauty, and for the latter commend me budded in preference to grafted Roses. D. T. FISH.

THE NEW ROSE, ROSA PISSARTI.

APROPOS of this I have two proposals to make—first, that a descriptive list of all the species of Roses that are sufficiently hardy for cultivation in our gardens, with illustrations of the same, may be given in THE GARDEN; and secondly, that the National Rose Society and other societies should offer prizes for the best collection of species of Roses at their annual or chief show. Either of these courses would do something perhaps very much to preserve the Rose species we already possess, and might prove the means of bringing us more. It is impossible to look upon the illustration of the beautiful new single Rosa Pissarti without earnestly desiring to possess it and kindred species of equal beauty and fragrance. Thus the illustrations and descriptions alone would create a brisk demand for new species of Roses, while their presence at exhibitions would reveal their charms to thousands and tens of thousands who are at present supremely ignorant of their existence, and have little idea that there are other Roses of surpassing loveliness as well as Perpetuals, Noisettes, and Teas with which they are familiar. Seldom in such a large and beautiful family as that of the Rose has one or more species or varieties, such, for instance, as the Perpetuals, been set upon so heavily as virtually to swamp all others. No doubt the classes—we cannot call them species—of Perpetuals, Teas, &c., are superlative and surpassingly beautiful. Still there are other species of Roses more elegant and equally artistic and beautiful. And hence, while we cannot have too many nor too good Hybrid Perpetuals or other show Roses, neither can we have too many species of single Roses in our gardens. Possibly, too, there may be species all too tender for our climate, and of these all that are sweet, distinct in colour and habit, perpetual blooming, or otherwise of sufficient merit should be introduced, for in this age of cheap glass and hothouse building by semi-express methods, and of Rose houses, space enough might be found under glass for those deserving species of Roses or any that are too tender for our wet autumns, severe winters, or treacherous springs. D. T. FISH.

Roses for forcing.—Will some one kindly tell me what are the best pink and dark Roses for forcing?—R. W.

Pea weevils.—The beetles forwarded in a glass bottle are the common Pea weevil (*Sitona lineata*), an insect which is very injurious to young Pea and Bean plants. Water the plants well if the weather be dry with liquid manure, and so push them into vigorous growth, when they will feel the attack less. Sand mixed with paraffin oil strowed along the rows is very useful in keeping the weevils away. Sprinkle the leaves when wet with soot or lime; while they remain covered the

beetles will not touch them. Remove any rubbish or clods near the rows which may shelter them.—G. S. S.

NOTES OF THE WEEK.

DECAISNEA INSIGNIS.—This beautiful Himalayan shrub, the flowering of which has been so long looked for in this country, will shortly be in flower in the temperate house at Kew, as a planted-out specimen is showing a goodly number of flower buds. It is a member of the Lardizabaleae, and the genus was named in compliment to the eminent French botanist just deceased.

RIBES GORDONIANUM.—Now that the common red-flowering Currant is seen in bloom everywhere, such a strange coloured one as Gordon's variety attracts notice at once. It appears to be midway in point of colour between *R. aureum* and *R. sanguineum*, the flowers being of a peculiar orange-red tint, a colour particularly striking in a shrubby. Mr. Stevens sends it in fine flowering condition, and we also saw fine examples of it in one of the shrubberies at Kew. It does not appear to be much known.

VARIETIES OF ORNUS VERNUS.—While this common vernal Vetch is to be seen in almost every garden, it is interesting to note the various forms of it, some of which were quite distinct. At Kew there is a good collection of them; and we noted *cyanus*, a bright and rich blue; *flaccidus*, very lax in growth and remarkably floriferous; *albus*, pure white; a double white kind tinged with rose; *alpestris*, like typical *vernus*, but dwarfed. These are all worth growing, making capital border plants, and excellent for planting on warm, sheltered banks or in the wild garden.

OUTDOOR CAMELLIAS IN WALES.—In Mr. Worthington's garden, Glyn-y-mel, Fishguard, S. Wales, situated in a sheltered spot about 200 yds. from the sea, may now be seen in the open two large Camellias in full flower; they are about 9 ft. high, and have been planted out about fifteen years. I have just counted on one of them fifty full-blown flowers and more than 100 buds just showing red. They are quite equal to some which I saw last March at Monte Carlo. There has not been the slightest frost at Glyn-y-mel this winter.—J. W.

MACRAYA BELLA.—This beautiful tropical shrub, which was illustrated in colour in THE GARDEN some time ago, we notice in flower in the Palm house at Kew, though scarcely so fine as Mr. Green grows it at Pendell Court. The large delicate mauve blossoms, exquisitely streaked and pencilled with dark purple, and produced in long drooping racemes, are very beautiful, and are set off by their glossy green of the foliage. It is a plant that seems to require some little attention to grow well, but its beauty when in flower amply compensates for any amount of trouble bestowed upon it.

THE ACACIAS, now in glorious bloom in the temperate house at Kew, are alone worth a journey to see. Probably nowhere in gardens can such grand bushes of *A. armata*, *pulchella*, *verticillata*, *muconata*, *leprosa*, *Riceana* be seen as in this vast structure at Kew, where they are unconfin'd on all sides, and have room to develop themselves, as in their native habitats. This year the huge bushes of *A. armata* are better than they have been for several seasons, and they form perfect masses of golden yellow. For elegance of growth few surpass *A. leprosa*, which has long strings of lemon-yellow tassell-like blossoms, or *A. Riceana*, whose growth reminds one of that of the Weeping Willow. The massive specimens of *A. verticillata*, com-

pletely covered with pale yellow blossoms, are just now on the wane, after being a great attraction to the house for a month or more. *A. pulchella* is one of the best of all the *Acacias* at Kew, and a most beautiful subject is the large planted-out specimen. Any one wishing to make a selection would do well to pay a visit to Kew, where, besides the large specimens just noted, there are hosts of small plants of different species in pots.

GOLDEN-LEAVED SPIRÆA.—One of the most important of all the *Spiræas* as a garden plant is the golden-leaved variety of *S. opulifolia*, now unfolding its handsome foliage, which at a distance looks like yellow blossoms. A fine branch of it from Mr. Stevens' garden at Byfield, Weybridge, shows the plant in its true character; it grows luxuriantly in that locality, and yet retains its golden hue throughout the year. In the arboretum at Kew, among the crowds of other species, it attracts at this season more attention than all the others.

BEGONIA LONGIPILA.—This is the finest *Begonia* in the collection in No. 8 house at Kew; indeed, it is the handsomest we have seen for a long time among the larger growing kinds. It is a variety of *B. heracleifolia*, and has similar large, deep-lobed leaves, handsomely variegated with various colours. The stout flower-stems rise a yard or more in height, each terminated by a large dense cluster of deep rose-pink blossoms. This would be a valuable plant to cultivate in private gardens; it would not only furnish a supply of cut blooms, but would form a bold and effective plant for grouping with fine foliaged plants in conservatories and rooms. It is a plant that should be taken in hand by nurserymen.

PLANTS IN FLOWER at Drayton-Deauchamp Rectory, March 25, 1882:—

<i>Chionodoxa Lucille</i>	<i>Muscari paradoxum</i>
nana	pallidum
<i>Fuschkinia libanotica</i>	Gusoni
compacta	botryoides album
<i>Tulipa altaica</i>	pallidum
Schrenkii	Sovitzianum
hildera	atlanticum
chrysantha	commutatum, and many
violacea	others
triphylla	<i>Scilla italica</i> alba
<i>Hieracium</i>	puschkinoides
precoc	<i>Erythronium grandiflorum</i>
<i>sylvestris</i>	Nuttallii
<i>Fritillaria lutea</i>	Gagea lutea
<i>delphinensis</i> (Mogridge)	polycarpa
montana	<i>Ornithogalum fimbriatum</i>
oranensis	cosmosum
armena	tenellifolium
<i>verticillata</i> var. <i>Thunbergii</i>	pterocarpum
<i>Korolkowi</i> var. <i>lutescens</i>	Aucherii, and various
<i>prepnacea</i>	others
<i>parviflora</i>	<i>Anemone blanda</i>
tenella	stellata alba
<i>Corbularia citrina</i>	ranunculoides
nivalis	pallida (memorosa)
<i>Euboeododum minor</i>	Robinsoniana
<i>Narcissus triandrus</i>	fulgens, and many others
<i>rupicola</i>	<i>Hyacinthus orientalis</i>
maximus	albus
<i>Telamonius</i>	<i>Corydalis cava</i> alba
cernuus	c. pallida
moschatum	bracteata
Macleyi	<i>Leucopium pulchellum</i>
<i>caput chrysanthum</i>	<i>Sanguinaria canadensis</i>
montanum	<i>Oxalis elegans</i>
<i>Triteleia uniflora</i>	<i>Iris cretensis</i>
allacea	caucasica
porphylla	tuberosa
<i>Bongardia Rawolfi</i>	<i>Romanzoffia sitchensis</i>
<i>Muscari Heldreichii</i>	Primula rosea
microcarpum	viscosa
macrocarpum	<i>Arabis rosea</i>
moschatum	blepharophylla
	<i>Cardamine macrophylla</i>

THE EARLY MAGNOLIAS.—There is a certain grandeur about the early flowering *Magnolias* which is unsurpassed by that of any other class of hardy trees and shrubs, and the fine effects they produce in the garden landscape at this season is very remarkable. In the arboretum at Kew the sombre surroundings of the American garden are enlivened by some grand specimens

of *M. conspicua* and *Soulangeana* some 15 ft. high, and completely covered with large, showy blossoms. Those of *conspicua* are pure white; those of *Soulangeana* stained with purplish red on the exterior. Nothing can well excel the grand effect which these produce, and it is a matter of regret that such fine specimens are rare in gardens.

PLANTS IN FLOWER at Park House, Reading.

<i>Arcticia cheloides</i>	<i>Thalictrum anemonoides</i>
<i>Gentiana acaulis</i>	<i>Cyclamen latifolium</i>
verna	<i>Fritillaria Meleagris</i> alba
<i>Anemone fulgens</i>	<i>Ranunculus bullatus</i>
stellata	<i>Borago laxiflora</i>
apennina	<i>Phlox frondosa</i>
Robinsoniana	Nelsoni
<i>Narcissus oxypetalus</i> (in greathouse)	<i>Asperula setosa</i> azurea
<i>Primula rosea</i>	<i>Geum coccineum</i> fl. pl.
nivea	<i>Stimulia fragrans</i>
denticulata	<i>Berberis Darwini</i>
cambrica	<i>Orobanch verus</i>
<i>Ionopodium acule</i> (continuously since Nov.)	<i>Saxifraga Wallacei</i>
<i>Pulmonaria sibirica</i>	<i>Corydalis ochroleucus</i>
azurea	<i>Omphalodes verna</i>
<i>Sanguinaria canadensis</i>	<i>Delytra eximia</i>
	spectabilis
	<i>Chionodoxa Lucille</i>

—A. E. BARTHOLOMEW.

CHIONODOXA NANA.—This charming little plant forms a good succession to *C. Lucille*, the beauty of which is now beginning to fade. It is, however, much its inferior both in size and brightness, the flowers being only about half as large as those of *C. Lucille* and of a paler tint—near to what is called a porcelain blue. It grows but 2 in. in height, and the stems, too much burdened with blossoms, lie almost prostrate. Such a pretty little plant as this is worthy of culture by those who love plants for their own sake, though we fear one would have a difficulty in obtaining it at present. It is in flower at Kew, where it was formerly grown as *Puschkinia scilloides*.

TULIPA CLUSIANA.—This pretty Tulip was one of the most conspicuous objects among the extensive groups of cut flowers shown at South Kensington by Messrs. Barr & Sugden last week. It may be at once distinguished from all other Tulips by its delicate tone of colour, the large blossoms being pure white except a heavy pencilling of deep rose-pink on the exterior of each petal of the outer row. Being very dwarf, too, it sometimes flowers when only 3 in. or 4 in. high. It is a most beautiful rock garden plant for early spring flowering, but, being a native of South Europe, it is a little tender, and requires a snug, sunny spot and good rich soil to grow it successfully.

HANDSOME FRITILLARIES.—In the Kew collection the following are just now really handsome plants: *F. ruthenica*, which we previously considered weedy, is here about 2 ft. in height, and bearing deep vinous-purple blossoms in large clusters at the upper part of each slender stem; *F. tenella* is likewise handsome, but scarcely so fine as *ruthenica*; *F. latifolia* is a noble flowered species, having bold, drooping, bell-like flowers of a greenish yellow, curiously chequered with purple. As in the case of *F. pallidiflora* (also in bloom), it is more remarkable for its fine growth than showy colour. All these *Fritillaries* grow in any good garden soil, but well repay generous treatment.

SOLANUM JASMINOIDES FLORIBUNDUM.—One of the most beautiful of greenhouse climbers is the typical form of this Peruvian plant, and the variety under notice is equally handsome, but it differs from the type in one important particular—while the latter seldom flowers in a small state, this variety flowers profusely even in the case of plants in 2½-in. pots, or, in fact, rooted cuttings. Plants in 4½-in. pots make perfect pyramidal specimens, profusely hung with clusters of snow-white blossoms, borne gracefully on drooping stems. Of this variety there is

now a number of plants in the Royal Exotic Nursery, Chelsea, most of which are in flower, and fully bear out all that is here said of them.

CROSYA TRINATA.—The introduction of this beautiful Mexican shrub to English gardens some few years ago by Mr. B. S. Williams was an important gain, for few shrubs of similar hardiness could be named as possessing so many valuable points. Its rich, deep green foliage retained throughout the year is a desirable property belonging to it; but it is when studded with numerous trusses of pure white blossoms that its beauty is most apparent, and the value of these is enhanced by the fact that they are deliciously fragrant, and that they so much resemble Orange blossoms, as to form excellent substitutes for them. In Mr. Williams' nursery at Upper Holloway plants of it are just now in full beauty in the greenhouses, where amongst other plants they are conspicuously attractive. It is perfectly hardy in the warmer counties, and even in other parts if protected by a wall.

MAGNOLIA STELLATA, or HÁLEANA.—This does well in a pot, producing blossoms when only 1 ft. in height. It belongs to the early-flowering deciduous section, and requires but slight assistance in the way of heat to have it in bloom when flowers are scarce. Its leaves are about 4 in. or 5 in. in length, of a rather pale green hue, and the flowers are pure white, fragrant, some 3 in. or 4 in. in diameter, and composed of a number of narrow strap-like petals, which become reflexed after being open for a short time. If forced, the plants must be gradually hardened off, plunged out-of-doors during summer, and liberally supplied with water. Thus treated, the buds will set freely, and if intended for forcing again the plants should be protected from frost. This *Magnolia* is a native of Japan, from which it was introduced by way of America. It is perfectly hardy in the neighbourhood of London.—ALPHA.

THE LEATHER-WOOD (*Dicra palustris*).—This shrub, now in flower, though not showy, is interesting. It is nearly allied to the *Daphnes*, and is naturally of a low, much branching habit. The flowers are produced before the leaves expand, and are borne in terminal clusters of three or four together, the prominent part being the yellow pendulous stamens; indeed a yellowish hue pervades the whole plant, extending even to the bark and leaves. It was introduced from the United States about the middle of the last century, and was at one time common in our gardens, but it is now seldom seen, probably on account of the difficulty there is in propagating it. A cool, shady spot suits it best; indeed wherever the common *Mezerion* succeeds it will also do well. It likes a peat soil.—A.

FRUIT.—Mr. Killick tells us that there is a splendid show of fruit in Kent this season. Everything looks well, from Nuts to Currants.

Crocus destroyers.—If Mr. Bradbeer (p. 108) will use an ordinary mouse-trap with three holes, set with thread and baited with burnt Oatmeal or Indian Cornmeal the field mice will come from all quarters to be caught. The traps should be set when it begins to get dark and taken away in the morning. Here the mice do not eat the *Crocus* roots, but crop the flowers like rabbits, totally destroying the garden plan for the season. Our *Crocuses* are planted in gravel along the edge of a wide terrace above a very extensive rockery. Here the mice find snug winter quarters and have to be trapped. The destroyers are all dead now, not being able to resist the smell of the burnt Oatmeal. We have a long bank of *Daffodils* which has been growing and extending for fifty years. When in full bloom nothing can be more beautiful.—M. E. C., *Auchendrone, Ayr.*

FRUIT GARDEN.

CHOICE CHERRIES.

ALTHOUGH excellent Cherries have long been extensively grown in some parts of England, it is only within the last few years that what are termed small fruits, Cherries included, have become indispensable in making up the finest desserts. It is not by anyone supposed that the Cherry can compare with the Strawberry for general use, but it makes up for this deficiency by giving us a longer season, and by hanging upon the trees for many weeks after it is ripe; indeed, by the aid of glass, which is now cheap enough, and a few strips of Haythorn's netting for keeping out birds, the finest kinds, Grapes excepted, can be kept longer than any other fruit with which I am acquainted. But it is not so much of the uses I wish to speak as of the facility with which the choicest kinds can now be brought to perfection in the smallest gardens. In the late Mr. Knight's days the limestone slopes in Shropshire and Herefordshire were thickly planted with Early Black, Elton, Downton, and others which will for ever perpetuate his name, and they may still be seen luxuriating in the calcareous loam which they love so well. These immense trees are of course growing upon the free stock, and well illustrate the extension principle; but we are indebted to another cultivator, the late Mr. Rivers, not only for cheap orchard houses in which to grow and keep the fruit safe from birds and wet, but also for the introduction of the Mahaleb stock, which adapts itself to all sorts and conditions of soil, and reduces many of the most vigorous growers into fruitful pyramids and cordons, fit for pot culture or any other use to which the cultivator feels disposed to put them. We are still further indebted to him for having raised, introduced, or brought under our notice many superior varieties which form a valuable acquisition to the older kinds.

Although many of the newer kinds (including the fine variety, Belle de Montreuil, of which the annexed cut is a good representation) have not been extensively grown on walls, there can be but little doubt that all of them will do well if judiciously selected for the situations they are to occupy, and the borders, consisting of free calcareous loam, are well drained, and not over deep. At one time it was thought the Morello was the only kind that would do well on a north wall, but I have found that May Duke, Archduke, Late Duke, Bohemian Black, Elton, Black Eagle, and those two fine Cherries, Governor Wood and Bigarreau Napoleon, fruit extremely well when planted in narrow borders, 3 ft. wide and 2 ft. deep, with 12 in. of old lime rubble for drainage, the principal points, as I have before observed, being protection from birds and wet after the fruit is ripe.

Where a proper Cherry house is used for forcing, such kinds as Belle d'Orleans, May Duke, Black Circassian, Elton, and Bigarreau Napoleon will give a long succession until similar sorts on walls come into use. For general consumption the May Duke tribe, including Duchesse de Pallua, Empress Eugénie, Nouvelle Royale, and last, but not least, Late Duke, will succeed each other, but not exactly in the order named, and, like the

Hamburg Grape in its class, will be appreciated by everyone as long as they can be obtained. Strong growing kinds like the Bigarreus, which ripen late, and all the fine black Cherries are well worthy of a house in which they may be grown in pots or tubs, or planted out and trained to a wire trellis 12 in. from the roof. As many of them make strong growth when young and produce large leaves, the shoots require plenty of room, and the roots should be confined to internal borders which can be kept dry when the fruit is ripe.

Eastnor Castle.

W. COLEMAN.

MELONS IN HOTBED FRAMES.

THERE is reason to think that we have to a great extent lost the art of Melon and Pine-apple cul-

ture the why and the wherefore, it is sufficient to say it suits plants better than heat from hot-water pipes or flues. The fine Pine-apples grown at Frogmore some years ago, and probably now, were grown in manure frames, and the top heat was principally kept up by linings of fermenting materials, if not wholly in some instances, and some of the best Pine growers in England still use a hotbed of leaves for plunging the plants in preference to hot-water heated beds. In Melon culture in manure frames the main point is the preparation of the bed. This should be composed of tree leaves and stable litter in equal quantities, or if leaves are not procurable, of any half-rotten vegetable refuse that will temper the violent heat of the stable manure. Mixing of the materials thoroughly two or three times in the course of as many weeks, and sprinkling them with water at the same time, is of vast importance, and when

all are in a mellow condition, they should be built into a square, firm, and well-trodden stack, at least 2 ft. wider than the frame all round, and from 4 ft. to 5 ft. deep. A heap like this, well knit together and solid, will retain a high temperature all through the summer and autumn, with the aid of additions two or three times in the shape of loose litter laid round the frame up to the glass, in order to sustain the top heat.

Planting and culture.—The

frame having been placed on the bed and filled with soil—half-decayed turfy loam, if procurable, or good common garden soil, which will do quite well if it be such as grows Peas and Potatoes or the like well—the young Melon plants should be prepared if not already at hand. It is better to sow somewhere else when the bed is being prepared, in order to save time. Be that as it may, a 6-in. pot will raise a score or thirty seeds, and the plants should be potted off in small 4-in. pots when they have made their first rough leaves, and planted out in the bed a few weeks later. The number of plants to a frame depends upon circumstances, but if each plant has a space of 15 square feet to itself, it is not more than is required to grow a good plant intended to bear a good crop of fruit; but less will do by judicious training. The usual and best plan is to plant the Melon in the centre of the bed, top it to cause two or more branches to spring, and lead one set towards the front of the frame and one set to the back. Usually the object is to “set” a crop of fruit as soon as possible, and in that case it is essential that the limbs of the plants should be evenly balanced, and that all should produce flowers in time to be set within almost a couple of days of each other at the most. It is quite a common thing in inexperienced hands to see a frame of Melon plants with perhaps one fruit to a light or to a plant when there might just as well have been half-a-dozen, or four at the least, if the training had been rightly managed. Such a result can be secured in this way: Top the young plant above the first two good leaves (which means about the third joint above the seed leaf) if only two shoots are wanted from each plant. Two shoots of equal strength are more easily originated than four, and the plants may be planted closer in the frame on that account. These two shoots almost invariably make equal progress, and one should be pegged loosely towards the back of the frame and one towards the front. When 2 ft. long, or thereabouts, pinch the top off each kind at the same time, no matter if one be shorter than the other. Both will shortly afterwards push from three to four good laterals or sub-shoots from the joints nearest the point pinched, and



Cherry Belle de Montreuil (natural size).

ture on hotbeds in which the heat is wholly supplied from fermenting materials. It is not a matter of much importance to those who have more convenient appliances in the shape of hot-water fittings, but it is well to remind those who have no such appliances, but who may have all the means of making good hotbeds within their own gardens, that from now till October or November they may produce excellent crops of Melons in manure frames—equal, indeed, if not superior to those in houses specially designed for the purpose, for a hotbed frame well managed is still one of the best places for the culture of Melons and Cucumbers and many other plants. There are many who yet prefer to use fermenting materials for bottom heat for the fruits named while employing hot-water pipes for top heat, but which are not used when the hotbed will sustain the temperature of itself. The heat of a hotbed is more natural, genial; and without here staying to ex-

these will show fruit at the second or third joints, and all will expand their flowers on or about the same day. These flowers should be fertilised with pollen from the male flowers (always plentiful and known by having no fruit behind them), at the same time performing the operation when the air of the frame is dry, about two o'clock in the afternoon, and when the flowers are usually in good condition. All the fruits thus set will likely swell equally, and a plentiful and even crop will be the result. Two or three fruits should be had on each of the two limbs on good strong plants with good foliage, or about six to the plant. Everything depends on the vigour, however; a heavy crop cannot be expected from plants with few and poor leaves, and by good leaves, I mean leaves of the circumference of the outstretched fingers of a man's hand at least, and of good stiff substance as well. It sometimes happens that the first laterals do not show fruit, as has been described, or do not show enough, and the way to do in that case is to pick off the one or two female flowers that do show, and pinch the laterals in their turn again at the first or second joints to cause a second sub-break, which seldom fails to fruit. The great point is to pinch methodically, and pinch all the main limbs at the same time. After training consists in giving the shoots left room to grow beyond the fruit, and cutting out those that room cannot be found for. Take great care of the first and largest leaves; it is these that do the work. Later in the season numbers of small shoots will push from the main stems, but these should be pinched out without hesitation, taking care never to cut a shoot close off at the point of origin from the main limb, which is apt to gangrene in consequence and rot off.

Temperature and ventilation.—From the time the seed is sown till the fruit is ripe Melons should have a night temperature varying from 65° to 70°, according to the weather, and a day temperature of from 75° to 85° and 90° under the same circumstances, giving least heat when it is coldest outside, and most when it is mild. At the same time there should always be free ventilation. The frame should now be quite closed, and more and more air should be admitted steadily as the thermometer rises, and be reduced as it falls to the chink of air that should always be left on at nights in any frames to let the gases escape that would accumulate and do mischief, more especially at the beginning when the fermenting materials have not quite lost their rankness.

Watering.—Melons in manure frames require much less water than in hot-water pits, but up till the time the fruit is set the bed should be regularly sprinkled or well watered when it appears dry, or feels dry to the hand, only do not let the soil become sodden. By the time the fruit has swelled to its full size the roots will have penetrated the moist hotbed beneath, after which they will need little or no water from the watering-pot, and may almost be left to ripen off in as dry an atmosphere as can be maintained, otherwise the ripe fruit is apt to split, but much depends on the season.

J. S. W.

FRUIT BLOSSOMS AT CHISWICK.

It was this now to be seen in the Chiswick gardens may be taken as an indication of what is to be met with elsewhere, then there is great promise of a rare fruit season. Pears and Apples, Plums and Cherries alike are profuse in the way of bud and blossom. The Plums lead the way; they are fast getting into full bloom. The earliest are Jefferson's, Diamond, and Mitchelson's. The first has the flowers fully expanded in clusters along the branches—really roses of snow-white flowers that have a charming effect. This Plum should be planted in shrubberies, so beautiful is it at this season of the year. The later Plums, such as Poppar's and others, are yet some way from blooming. In Mr. Francis Dancer's fruit garden the trees of Mitchelson's Plum are a perfect picture, so full are they of flower. The Pear trees at Chiswick especially show a large promise of bloom. Here and there a tree is already well-nigh expanded, but it will be a fort-

night ere the full flush of the floral beauty they exhibit will be presented to view. A large number of the pyramid trees, spurred back hard as they are, will soon be clothed with blossoms from head to foot. In the way of pillar plants for isolation in various parts of the garden, what can be more acceptable than these pyramid trees? There are few pillar plants that can compare with them at the blooming season, and again in autumn when they are covered with coloured fruit. Fruit trees are not enough used for garden decoration. We seem to shrink from adding the utilitarian to the artistic. On Apple trees also there is a fine promise of bloom. They will succeed the Pears, and yield tints not found among the latter or the Plums. The small bush trees, of which Mr. Barron has a good collection, promise exceedingly well, Cox's Orange Pippin in particular. This Apple, which has been shy of late, appears as if hastening to make up for scarcity of crop in the past by presenting to view a promise of bloom of a very satisfactory character. In ten days or so Chiswick will well repay a visit if one desires a study in fruit blossoms. The gardens are in admirable order, the houses full of interesting plants, and flowers peep up in all directions.

R. D.

FLOWER GARDEN.

SINGLE DAFFODILS BECOMING DOUBLE.

My experience is the same as that of Mr. Wolley Dod (p. 203), viz., that one cannot make single Daffodils double. Still, the popular belief in such changes is almost universal; but much of it is doubtless based on the fact that many of the wild Daffodils transferred from the mead to the garden were double from the first. The flowers become larger and better, and so the doubleness becomes apparent. I am glad the change cannot be effected by art, and only regret that Nature has become so prodigal of doubles in the families of Daffodils and Snowdrops. A double Daffodil is half spoilt, and double Snowdrops three-quarters or wholly ruined. And yet in some countries, many parts of this, for example, single Snowdrops are almost extinct. We have only a few patches of the single, which are the perfection of grace and elegance contrasted with the huge weight of the double. The Crimean also keeps single, which with its size and lateness gives it a peculiar beauty and value. Has anyone found out any way of turning double Snowdrops and Daffodils into single ones? If so, they need not stop at these, but run through many more bulbs, including Hyacinths and Tulips. So far no one has been able to ruin our Crocuses by making them double, and it is to be hoped they never will be doubled. I feel so strongly on this point that I should gladly advocate the formation of an anti-double flower society, unless due and sufficient cause could be shown for the change. In such families as the Rose there is room and reason enough for double as well as single flowers. Nature takes kindly to the double forms in these, and moulds the extra petals into nice symmetrical shapes. But in the case of Daffodils, Tulips, &c., the extra material is crushed in anyhow, anywhere, showing clearly that the flowers do not want it.

D. T. FISHER.

PORTULACAS.

Of all annuals that can be grown out-of-doors I know of none more beautiful than Portulacas; their rich colours and the freedom with which they flower when under favourable conditions render them well worth special attention. Anyone who has a narrow, dry border or small flower bed similarly circumstanced may grow these beautiful plants to perfection with a minimum amount of trouble. Seeds of them are offered for sale by most of our seedsmen in mixed packets, and also in separate colours; but I prefer to have each colour separate and mix them myself. I find the simplest way to raise a stock of plants is to sow seeds in small pots. I prepare a number of 3-in. pots, sow a few seeds in each, and then place them in a warm house. Early in April is a

good time to sow the seed. After being sown, water must be given sparingly until the young plants appear above the soil, and even then damp is a greater enemy to them than drought; careful watering is therefore necessary. About the middle of May they may be taken to a cold pit or frame to be hardened off like other bedding plants. The next thing is to select a position for them. This being done, a suitable compost must be prepared for them. As they are not deep-rooting plants the depth need not be more than 6 in. The compost should consist of equal quantities of light garden soil, old mortar, leaf-soil, and a good sprinkling of sand, all sifted through a coarse sieve. Early in June the plants may be turned out of their pots without being disturbed, and placed about 5 in. apart, which will be wide enough to ensure the ground being covered. A little water should be given at the time of planting to settle the soil about their roots, and they must also have some during the summer, but they do not want nearly so much water as most other plants.

J. C. C.

Czar Violets.—These should be raised from runners every year, and in order to have fine large blooms all through the autumn, winter, and spring months, this is the best time to make fresh plantations of them. The ground should be heavily manured and deeply dug every year. I never replant plants that have bloomed, as they only yield small flowers with short flower-stems. I never have the runners taken off; therefore there is always plenty of fine healthy young runners, and of these I select the strongest. Plants treated in this way furnish plenty of blooms from 3 in. to 1 in. in diameter with flower-stalks 8 in. in length. Of such blooms there is no difficulty in making up Violet bouquets of any size required, and it has been no trouble to gather from one to two bushels weekly. I plant about 2000 plants on an east border; about 100 of these are potted in September; the remainder is planted under the protection of a south wall for early flowering. I have just finished planting under east, west, and north walls, and on every spare border and corner that will grow them, even where Violets would be least expected. I prefer growing them in single rows where it is possible to do so, and have long ago abandoned growing them in beds. For these last 21 years I have been enlarging our Violet plantations, and still the cry is, more Violets.—RICHARD NISBET, *Asnaby Park*.

Different kinds of Wallflowers.—The rule in this district is to sow seed of Wallflowers in the month of February should the weather at that time be favourable. If this be not done there is little chance of getting a good stock of early blooms to cut through the following winter. Everywhere the seed beds are full of young plants, which will be ready to plant out in succession to late Broccoli or some other late crop at the end of May or early in June. In good soil and with a growing season these plants often get as large as a bushel basket. Seed is saved from plants that are not only early, but have a rich, deep colour. The flowering branches should be numerous, all come up together, and carry the flowers well up at the points, so that when bunched a good mass of flower is seen. Thus the constant selection of the earliest bloomers for seed producers keeps up the best features of the London market strain. In ordinary gardens where the Wallflower is regarded as a very common border plant and nothing more, a sowing is often made perhaps in May, and as yellows and reds are intermixed, plants from seed soon become worthless; whilst, however, we have but one good strain of dark red Wallflowers there are several forms of the yellow, the earliest being the tall golden, a beautiful kind for large masses and for furnishing cut flowers. A good selection from this tall one gives flowers of an orange hue, and plants of not more than one half the height. This is a good, compact, early blooming form, and will, when quite true, make a capital garden strain. The Belvoir Yellow is the latest, yet the most dwarf; indeed, I have plants that though 1 ft. over are not more than

5 in. to 6 in. in height. This is a real Tom Thumb strain; the usual height is from 9 in. to 10 in. The Belvoir Yellow gives us a pure and pleasing shade of Yellow that is very telling in masses. It is a pity we cannot get it to bloom as early as the reds do, but it will not. The earlier the dark kinds bloom the richer the colour. A few hot days in the spring will often take the colour out of them materially. Yellows do not suffer in that respect, but the earlier the bloom the more enduring, and the less liable is it to burn or fade.—A. D.

SPERGULA PILIFERA.

(LAWN PEARLWORT.)

Numerous plants have from time to time been recommended as substitutes for lawn Grass, but none have withstood any lengthy trial for this purpose, though they have their uses in other

roots or feeders, and they altogether cease to be produced as soon as the plant has outgrown the object to which it clung. It then quickly assumes, as it were, independent action, and becomes a symmetrical bush or tree—a form in which it generally flowers freely and produces abundance of berries—and cuttings taken from this part of the plant, when rooted, invariably retain this bush or tree-like form. Where used for festooning dead or decaying trees, partially clothing a ruin, or concealing unsightly objects, the more luxuriantly and unconstrained it develops itself the better; but where it is merely required to cover a dead wall, it should not be allowed to grow unconstrained, as in that case even its own weight will sometimes detach it from the wall. Therefore, to prevent this from taking place, it should be annually clipped, or cut in as closely as possible; and the best time to perform this

H. H. chrysocarpa, or the yellow-berried variety, &c.; also several exceedingly beautiful variegated kinds, such as H. H. variegata and H. H. elegantissima. These variegated kinds are, however, of somewhat slow growth, and succeed best on the north side of a wall, or at least in some situation where they are shaded from the mid-day sun, and under such conditions they produce a very pretty effect. Although variegation to some extent exists among the large-leaved Ivies, in no instance, so far as I know, are they improvements upon the green-leaved varieties, the variegation being of a very irregular and uncertain character; the foliage in most cases has merely the appearance of being splashed with whitewash. Anything approaching to regular marginal variegation in the case of the large-leaved Ivies has yet to be secured.

Bury St. Edmunds.

PETER GRIEVE.



Spergula pilifera (life size).

ways. It was at one time expected that the little plant here figured would form a good turf for lawns in every respect, but it has not proved satisfactory. It is, however, none the less a very beautiful minute alpine plant, exceedingly welcome on rockwork, and for forming carpets almost as compact and smooth as velvet, dotted with numerous small, but pretty white flowers, the light, fresh green, Moss-like carpet being starred with them in early summer. It is unsurpassed for forming carpets of the freshest and dwarfest verdure beneath taller, but comparatively small, beautiful and rare bulbs or other plants which it may be desired to place to the best advantage. It is most readily multiplied by pulling the tufts into small pieces, and replanting them at a few inches apart; they soon meet and form a carpet. It is also readily increased by seeds, but this mode is rarely worth resorting to, unless it is desired to propagate the plant largely for lawn-making. Although it does not generally form a permanent and good turf, yet it is quite possible by selecting a rather deep sandy soil, and by keeping it perfectly clean and wellrolled, to make a beautiful turf of it. This is, however, rarely worth attempting except on a small scale, and when it begins to perish in flakes here and there it should be taken up and replanted.

At South Kensington, the other day, Mr. Dean, of Ealing, showed a golden-leaved variety of this plant, which will, no doubt, be much sought after for the purposes mentioned above, as it contrasts beautifully with the green-leaved type. The golden hue of the foliage is retained throughout the year.

IVIES, GREEN AND VARIEGATED.

There is no wall, dead or dying tree, or crumbling ruin too high for Ivy to speedily cover and festoon with its rich, shining, dark green foliage, giving an appearance of life and beauty to what would otherwise be dead or in a state of decay. Ivy also possesses wonderful powers of adaptation to existing circumstances; the aerial roots, by which it clings to walls, rocks, or other objects, may, under favourable conditions, be readily induced to perform the functions of terrestrial

operation is early in April. Growth will then have just commenced, and in the course of a very few days the surface of the wall will again be clothed with fresh young foliage. All litter in the form of decayed and falling leaves during the summer months will thus be avoided. The practice of annually denuding an evergreen of its foliage would doubtless, in the case of most plants, be attended by anything but beneficial results. But in the case of the Ivy no injury need be apprehended; instances can even be pointed out where for scores of years it has submitted to this treatment, and where it is still in the best of health.

In addition to the adaptability of Ivy for covering unsightly walls and buildings, festooning aged trees, and rendering them even more ornamental than they were when in their prime, as well as lending beauty and increased interest to ruins of all kinds, it will also submit to an amount of shade which would prove detrimental, if not fatal, to most plants. Therefore it is exceedingly useful for covering the surface of the soil under the shade and drip of large trees. It is also useful as a marginal plant for beds of flowers and shrubs, and forms a very substantial and ornamental edging to broad walks and drives or coach roads. It forms, moreover, exceedingly ornamental standards, with clean stems, for pot culture or for planting in the flower garden or elsewhere. Cuttings for plants intended for such purposes should be taken from those portions of the plants which have ceased to produce aerial or clinging roots.

Nothing has as yet been said regarding varieties; the preceding remarks apply chiefly to the Irish Ivy (*Hedera canariensis*), which, for beauty and adaptability to most purposes, can hardly be surpassed by any of the other kinds, but they also apply to such sorts as *H. algeriensis*, a rapid grower, with large foliage of a light green colour; *H. Rognieriana*, with heart-shaped leaves, a fine free-growing variety; *H. dentata*, with fine large dentate leaves, also a fine distinct variety; *H. donerailensis*, *H. sagittifolia*, and others. The common wild species (*H. Helix*) is to be found in most woods and waste places in all parts of the country; it has smaller foliage, and is altogether less ornamental than most of the large-leaved kinds just alluded to. There are also several varieties of this Ivy, such as *H. H. arborescens*, a sort generally found adhering to the stems of trees;

THE GILLENIAS.

THESE near allies of the *Spiræas* possess so much lightness and elegance of growth that many would be pleased with them associated with plants of a denser growth, and, moreover, when in flower they really are very attractive. Two species are known to us, both North American, and both are in cultivation. The commonest is *G. trifoliata*, or, as it is popularly named, Bowman's Root. It grows about a yard high, and has numerous erect, slender branches, furnished with trifoliate leaves. The flowers are of a reddish tint, thus contrasting prettily with the blossoms. The other species, *G. stipulacea*, or American *Ipecac*, is similar, differing only in technical details. Both grow well in ordinary garden soil, but best in a damp peaty



Branch of *Gillenia trifoliata*.

bed in partial shade. Clumps of *G. trifoliata*, a yard through or so, have quite a handsome appearance.

Iris reticulata.—This lovely purple and gold-coloured spring flowering Iris is better than usual this year; the mild genial weather has just suited it, its blossoms being perfect without splash or stain. If an Orchid were discovered equal to it in beauty, what a sensation it would create! and yet this Iris, hardy and handsome as it is, is only known to and grown by a few. With us it does best in light, rich sandy soil, in which it spreads, and becomes stronger from year to year, but does not like any disturbance. As it comes early into flower, it is necessary to plant it in sheltered spots, the margins of Rhododendron beds or other similar positions being the most suitable. In such situations the soil may easily be prepared for it by working in some sand and leaf-mould where the roots are to be planted.—S. D.

Hardy Primroses.—Of a large number of single Primroses raised from seed last summer quite two-thirds are now well in bloom, and probably all will flower in a week or two. Thanks largely to a mild growing winter for this unusual result, for the seed was not sown till July last, and it is not often such a fine lot of blooming plants can be got in less than nine months. Still, something is due to labour and culture, for the seedlings were pricked out as soon as they were large enough in a frame, and were nearly all transplanted to the open ground early in December. Thus they were kept growing from the first, with the result that the plants are quite as large as they would have been next year had the seed been saved till now and then sown. A year is a long time, and if it can be saved so much the better. Many fail with their Primrose seed because they gather it too early. The pods should become brown and the seed coloured first, and then when exposed to the sun under glass for a week or two it gets well matured and ready for sowing. Of all the seedlings that have bloomed perhaps one-fourth have come in the *Polyanthus* form, but though that may be undesirable in one respect, it is not an unmixed evil, as many promise to be fine, and of rich colour. It is without doubt a fact that the Primrose from fine coloured strains furnishes some of the finest and richest of border *Polyanthuses*. In the Primroses colours are being found in rich variety; bluish and purple tints especially are very charming, but the nearer the ideal blue is reached the more fugitive the colour. The present season is such a good one for Primroses, that lovers of these charming spring flowers may well be induced to breed novel seedlings for themselves. The lilac altaica, so-called, crossed with pollen from purple and crimson flowers, yields many beautiful kinds.—A. D.

SHORT NOTES—FLOWER.

Triteleia uniflora.—In the herbaceous border this is one of the finest things now in bloom, and forms a striking contrast with the scarlet of *Anemone fulgens*. The time to plant is when the leaves die away, as then the bulbs are ripe, and may be moved without causing much check. In order to grow this *Triteleia* well and strong it should have light sandy soil, and when once planted be left to spread and increase without further disturbance.—S. D.

Auricula Yellow Prince and Primula acaulis auriculiflora.—Yellow Prince is a lovely yellow Auricula, the blooms being large and beautifully fringed, and the stems strong. The plant is hardy, a good grower, and in every way excellent. The Primrose is also lovely, the colour being bright red, and the yellow eye so striking that it is quite a change from the double yellows, whites, lilacs, and other sorts with which one generally meets.—J. C.

Variegated blue Passion flower.—I send you leaves of a variegated *Passiflora auricula* raised here last year amongst some seedlings. As I had not heard before of a variegated hardy *Passiflora*, although there are several tender kinds, such as *P. tricuspidata*, *P. edulis*, *P. quadrangularis*, *P. acutifolia*, and one or two others variegated, I thought it worth notice.—J. M., *Charmouth, Dorset*. [The leaves sent were variegated with yellow, but not bright enough, we fear, to be effective.]

WHITE GLASS FOR WHITE LIGHT.

ON p. 416, Vol. XV., is a short note I forwarded on the subject of discoloration in glass, &c. As I left soon after for New Zealand, I do not know if any notice was taken of it; but as a discussion has lately taken place with regard to the best pitch or angle of roof for obtaining the full power of the sun's rays, while nothing is said about the colour of the glass through which the rays are to be transmitted, nor is any notice taken of their greatly varying chemical power, I venture to enlarge somewhat upon these points. I can give no better authority than my own opinion for the statement that, on the average of years, we receive in this poor, much-abused England as much vegetative power or actinism in the light as any other part of the globe, or, to put it in more general terms, the actinic power of the sun is, except in high latitudes, very nearly equal all over the world. Please note that heat is not claimed as being of such equal distribution. The sunny skies of the Tropics, to which so much importance is attached, are by no means the promoters of vegetation, that those who only read of them suppose. Clear, blue skies possess very little actinic power, owing, perhaps, in part to the dryness of the atmosphere, and the consequent deficiency of water dust, if I may so term it, which is possibly the medium necessary to make light visible. In India the difference between the growth of vegetation during the strong glare of the north-east and the cloudy, rainy days of the south-west monsoons is very great; but the dryness of the atmosphere alone will not account for it in my opinion, and doubtless the incidence of the rays and other properties of light, of which we are as yet ignorant, are important facts in this matter.

In English winter weather the light has, according to Professor Roscoe, only one-tenth the power it has in summer, and owing to the shorter hours of daylight we obtain only one twentieth-fifth part of that actinism which is showered upon our land. But we need not trouble about the scientific part of this matter if we can but convince those who force fruits, flowers, &c., in winter that it is possible for them to obtain much more light than, as a rule, they do at present. A rather steep pitched lean-to house facing the south would be the first essential, the second would be the annual change of the discoloured glass in autumn, and the third would be the keeping such glass perfectly clean. I pointed out years ago in a now defunct periodical that by the use of strips of rubber in place of putty, and removable slips of wood or metal on the top of the sash bars, the glass could easily be removed, and large dealers would doubtless be content to exchange the glass for new by a small payment if standard sizes were adopted and adhered to. But, in any case, the careful selection and, if necessary, the manufacture of special glass that would stand exposure without much change in colour, would allow of much harder forcing than can safely be used, where the weak winter light is so greatly reduced by the use of heavy bars, discoloured glass, and a more or less thick veil of dirt.

It is unnecessary to instance the power of various colours upon vegetation, as this point has been so often experimented upon, but there is a matter which will, I trust, receive attention from those who practice it, viz., the ventilation which is supposed to be such an absolute need for healthy growth; is not this oftener overdone than the reverse? May we also suggest that some of our professional gardeners overdo both the watering and the night temperature. The nights in tropical climates are often sharp and keen, and yet the vegetation does not suffer. The rank sappy growth promoted by high night temperatures cannot possibly be healthy unless the plant receives a corresponding amount of light during the day, and this in England is hardly possible during the winter; therefore during the long nights every care should be taken to avoid the slightest excess of heat; and during the same period, i.e., the winter, the ventilation might be of the slightest amount if only light were given fair play and undue watering avoided.

LONDON STONE.

GARDEN FLORA.

PLATE CCCXXXI.—LILIUM LEICHTLINI.*

MOST Lily growers seem to find varying success with the culture of this Lily in the open garden. After losing it often, I found it would grow well in light, open soil, with a great quantity of drainage and partial protection from the morning sun. It has the most curious habit of throwing up its growth a long way from the bulb, the stem sometimes going underground for a considerable distance before growing upwards. I have noticed something similar with Lilies of the Thunbergianum type imported from Japan, and its near ally, *Lilium Maximowiczii* (which is simply a red *Leichtlini*), does the same. These two Lilies are closely allied to *Lilium tigrinum*, but I have never noticed the Tiger Lily make this curious underground stem, and I have never seen *Lilium Leichtlini* or its red counterpart form bulblets up the stem. I wish someone having more knowledge than I have would tell us if this Lily is found growing wild, and in what locality in Japan. Some years ago Mr. G. F. Wilson said *Lilium Leichtlini* was one of the four best Lilies, and since then I have been eagerly trying to get it to grow properly. I have not yet had more than four flowers on a stem; each flower lasts longer than any Lily I know of. It is autumnal.

FRANK MILLES.

THE GIUSTI GARDEN, VERONA.

FOR the following account of this famous garden we are indebted to Dr. Septimus Piesse, who also sends us a photograph, strikingly illustrating some of its charming features; but as the obtaining of good engravings is work that takes time, we publish the account at once, and may give the engraving hereafter.

"The palace and garden of the Conti Giusti have been in uninterrupted possession of the family for over 1100 years. The garden, which is purely Italian in style, is furnished with hedges of Privet and Box, cut mural fashion, 2 ft. or more thick, and some 8 ft. in height. Its most striking features are its gigantic Cypress trees, of which there are more than 200 specimens, some looking very healthy and youthful, though from 600 to 700 years old, and from 110 ft. to 130 ft. in height. A horizontal Cypress growing here is said to be over 1000 years old, is 14 ft. in circumference at 3 ft. from the ground, and is 120 ft. high.

"The flower beds with their thick Box edgings are at present gay with Heartsease, double pink Primroses, Parma Violets, *Polyanthuses*, Hyacinths, and Daffodils. Various fountains throw up an abundance of water, and there are statues of Flora, Ganymede, Mercury, Diana, and many others, mostly surrounded at the base with white *Deutzia*, now coming into bloom. Near the overflow of the fountains are masses of *Spiraea Ulmaria*. At the far end of the garden a flight of some thirty steps brings one to the face of rocks known as the red marble of Verona. Here is an ancient grotto, of which ants and lizards seem to have taken possession. From this there is a wide ascending pathway, edged with Rice-paper plants, leading to a tower, from an open casement in which a view of the city of Verona and the river Adige can be obtained, while below lies the garden, the plan of which can be better seen than when on the ground, the tall Cypresses obstructing the view. The different walks lead one through groves of Orange trees, Magnolias, Oleanders, Laurustinuses, Box, and Laurels. Several alcoves overgrown with the *Devoniensis* and Banksian Roses

* Drawn by Mrs. Miles from a plant that flowered in the garden at Bingham.



LILIAM TURKESTANICUM

may be seen here, and which are said to bloom freely in June. This garden is well worth the attention of all who visit Verona."

KITCHEN GARDEN.

CULTIVATION OF CELERY.

CELERY requires good cultivation to bring it to perfection. It may be had in use from the beginning of September till late in April. The ground on which it is to be grown must be well drained to the depth of 3 ft. or 4 ft., and trenched 2 ft. deep, enriching it at the same time with good stable-yard manure and rotten leaves. The best way is to trench and ridge the ground at the same time, burying the manure deeply, so as to encourage deep rooting, an advantage during dry weather. Some time before the ground is required level down the ridges; if the soil is heavy, fork it over several times, in order to bring it into good condition before forming the trenches. The latter, for tall-growing varieties, should be 6 ft. apart, and for dwarfed sorts 4 ft. apart. Make them 18 in. deep and 15 in. wide. If possible they ought to run north and south, in order that the plants may have the benefit of the midday sun. Tread the bottom of them quite firm, and place in them from 6 in. to 9 in. of perfectly rotten manure, always preferring rich, well-decayed material from the stable-yard. On this must be placed some soot, when the trenches will be ready to receive the plants. I find by placing the manure deep that the roots reach it just when the centre leaves are coming up that are blanched, and if the plants are well fed at that time they form large hearts, crisp and white as ivory.

If very early Celery is required prepare some rich soil and fill a seed-pan or box with the compost, firming it well; sow the seeds thinly, cover them over lightly with some finely sifted soil, and water through a fine-rosed watering pot, placing the pans or boxes upon a shelf in the stove or in ainery at work. The seeds will soon germinate, and when the young plants have made two or three leaves, prick them off into boxes in rich loamy soil with plenty of manure, a portion of leaf-mould, and a sprinkling of silver sand to keep the compost open. Seeds for the early crop ought to be sown in February, and the seedlings will be ready to plant out as soon as all danger from frost is over. Sometimes early Celery plants are grown in 4-in. pots where pits or houses are at command, and thus treated when planted out they sustain no check when planted in the trenches and well watered.

A second sowing may be made about the middle of March, either in boxes in a warm house or pit, or on a slight hot-bed on which are put 6 in. of fine rich soil made pretty firm, covering lightly with some finely sifted soil. Prepare a piece of ground by treading it firmly and placing on it 6 in. of rotten horse manure and leaf-mould in equal portions, tread firmly and cover with 2 in. of fine rich soil. When the plants have made two or three leaves prick them out in rows 4 in. apart upon the bed thus prepared, firming them well in as the planting proceeds, and watering them with a fine roset pot, so as to settle the soil round them. If at hand a frame might be placed over the bed for a short time until the young plants have got established, giving plenty of air during the daytime, or the plants can be covered with mats at night. If properly cared for they will be fit to be transplanted into the trenches in two months from the time the seed was sown. For late plants a sowing may be made in April the same as in March, only the plants will need no protection when pricked out.

TRENCHES for Celery are often made between rows of early Peas, which shade the Celery plants when newly planted in hot weather, and when the Pea crop is harvested the Celery has the full benefit of sun and air. The trenches being ready for the reception of the plants, water them the day previous to transplanting; lift them carefully with a trowel, preserving every fibre, replant 1 ft. apart, press the soil firmly round the roots, water well, and shade for a few days if the weather be dry and warm. The summer treatment consists in keeping the ground free from weeds by frequent hoeings, watering twice a week if the weather is very dry, and once if dull. When the plants are from 6 in. to 9 in. high, weak manure water may be given them once a week. This is prepared by soaking either cow or horse manure in a large tub or tank, applying a portion of soot with the manure water, or a handful of soot may be scattered occasionally around the plants before watering them. This destroys slugs and feeds the plants, giving them a fine green colour. In exposed situations it is often necessary to tie the leaves up when 1 ft. or so high to save them from being broken by high winds, using for the purpose strands of fine matting, but be careful that the ties do not cut the leaves when growing. It is best not to earth the plants up much until they have nearly completed their growth. Merely scatter a little soil over the roots once a fortnight to serve as a mulching and induce the roots to come to the surface.

BLANCHING requires from five to seven weeks after the final earthing. Before commencing to earth up all small leaves and any suckers, or secondary shoots, which may have grown from the base of the plants should be removed; tie the leaves carefully with some pieces of thin bast, which will give way as the plants swell. Some use tubes for blanching, such as drain-pipes, placed round the plants; others paper collars, and some employ clean paper, which keeps the soil from getting into the hearts of the plants when earthing is being performed, raising the collars as the earthing proceeds, or the collars may be left upon the plants. If tubes are not used, the soil must be banked up in the usual way at several times, being careful to keep the leaves close together, so that the heads may be straight and compact after being blanched. Choose dry weather for earthing, for if damp the hearts are sure to rot. Before earthing, scatter a little lime round each plant, which destroys all slugs, which are often destructive to Celery during the winter in damp soil. A sprinkling may also be used when proceeding with the earthing.

Celery may be grown in single rows or as many as may be thought fit, making the trenches wide enough to receive the number of rows intended. One row is the most convenient in private gardens, and even market growers adopt single rows more than double ones. When the earthing is finished, and before severe frost sets in, cover the tops of the ridges with dry straw, or, better, if at hand, some dry bracken, which prevents the frost from injuring the tops of the leaves and keeps the hearts of the plants dry.

VARIETIES.—I have grown the following for some time, and have found them to give satisfaction both as regards growth and quality, and they keep well—an important matter. Perfect specimens of Celery must have the following good points, viz., the leaf, or stalk, must be broad, thick, solid, crisp, free from ridges and stringiness, and the heads good in form and weight. Carter's Incomparable Crimson is excellent in quality and a good keeper. Sandringham White is one of the best dwarf white sorts, suitable either for early or late crops. Major Clarke's Red is one of the best for the main crop, being solid

and crisp, and keeping till late in the spring. Williams' Matchless Red is a good, useful variety. Wright's Grove White is one of the best for the earliest crop, blanching freely early in autumn. Hookey's Conqueror, a red sort, is one of the heaviest of Celeries, and good in quality. Large-rooted Celeriac I find to be useful for soups.

WM. CHRISTISON.

The Rookery, Bromley Common.

Cucumber growing for profit.—Of all the numerous ways there are of growing Cucumbers for profit, no way pays better than growing bad seed, provided one goes the right way to work. First of all we must grow large quantities of seeds, but they must not be allowed to ripen, or else we will have the trouble of baking them for a few minutes to prevent them from germinating. After this is done we must advertise in all the horticultural papers a new Cucumber, giving it a grand name, and it will be found that the seed will sell well. Now, I am only speaking from what I have experienced myself this year with a new Cucumber. It was advertised in most of the papers as the leading Cucumber of the day—said even to excel our well-known Telegraph in quality and quantity. This new Cucumber was supposed to have been a cross between Telegraph and Tender and True. With me it has turned out very tender, but not true, for not one of the seeds of it have come up after paying sixpence per seed for them; and, having purchased a large quantity of these seeds, I am rather disheartened and set against what our seedsmen terms a novelty. Now the failure of these seeds in my case did not occur through their not having proper treatment; I sowed several other kinds of Cucumbers the same day in the same kind of soil, and put them all in the same hotbed together, and they are all up, strong, healthy plants, with the exception of the new kind, I have heard talk of underground Cucumbers, and I begin to think this new variety must belong to that class; it seems to like underground very well, for it is still there. Now I think if one man can make money by this sort of thing, there are the same chances for others, provided they go the right way to work.—J. GOHM, *Plais-ton, Essex.*

Mushrooms turning brown.—I fancy that the temperature (65°) of "J. D.'s" Mushroom house is too high, and filling the house with steam by pouring water on the hot pipes would discolour Mushrooms. No fire heat should be used unless the temperature falls below 50°. I am very successful with Mushrooms; the temperature of my house ranges from 50° to 55°; I have beds that have been bearing abundantly since November last, and the produce is quite as white and good in flavour, and much larger than any Mushrooms that I have ever gathered from the open fields in July or August. I make up my beds in the same way and use the same material as "J. D.," but I spawn when the temperature falls to 70° or 75°, which I find to be the best plan. My beds are from 12 in. to 14 in. deep, and I have picked more Mushrooms from 1 sq. ft. of bed than "J. D." has had from a bed 35 ft. in length. When Mushroom beds become dry, I have observed that the small Mushrooms, about the size of Peas, turn brown, soft, and useless. Mushrooms require syringing when the soil is on the side of dryness; I syringe my beds at night through a very fine roset syringe, using tepid water. My house is quite dark, and has no ventilators with the exception of the doors, which are only opened when going in to pick the Mushrooms or to regulate the beds. Some no doubt will say that ventilation is necessary, but I have learned from experience that it is not; I have had houses furnished with ventilators, but I find they do better without them. The French Mushroom caves cannot be ventilated in the same way as some of our growers have their houses. A little ventilation would doubtless do no harm, but it can be dispensed with. If "J. D." lowers his temperature he will be more successful.—S. BRIEN, *Gilltoun Nembridge.*

NOTES AND READINGS.

FREE FLOWERING ORCHIDS.—The flowering habit in an Orchid is a great consideration to those who have to begin, as the majority have to do, with small pieces of plants and "imported bits." Waiting years for one or two flowers, perhaps not to come then, is rather wearisome work to an enthusiast. The famous *Cattleya gigas*, for example, is a sure grower, and soon makes a fine plant, but for real utility as a flowerer *Cattleya Mendelli* is worth a dozen of it, and not so much behind either in quality. It is one of the very finest of the species, and probably the freest flowerer of any. Imported roots will bloom the year after potting, and produce fine flowers, too. If we are not mistaken some of the "specimen plants" of this *Cattleya* which we saw last summer at some of the great shows were "made up" of imported pieces not more than twelve or eighteen months old. It is a plant that should be grown extensively. The *Cymbidium eburneum* is another free flowerer, few spikes producing less than two flowers. It is the Iris of the Orchid house, and there is a small and a large flowered variety, both equally good in other respects.

SPRING GARDENING IN THE PARKS.—That new phase of spring gardening in some of the London parks this season is in the right direction, i.e., the naturalisation of Daffodils, Crocuses, and Tulips, &c., on the Grass and under the trees, and is said to have attracted more than usual attention. The plan is simple and inexpensive, and commands itself because it does not interfere with the summer arrangements, or at least need not do so, and it is capable of extension on as large a scale as may be desired. Really little more is needed than dibbling in the roots if the soil be ordinarily good, and what will keep the Grass green and healthy will also serve the flower roots. What possibilities there are in the same direction with Primroses, Polyanthus, Hepaticas, Grape Hyacinths, Iris, Peonies, and many other things of a less evanescent and later flowering habit! One can conjure up visions of beauty in that direction, and easy of realisation, such as have never yet been seen in any public park or garden. Extensive planting is all that is needed, and almost the only rule to be observed is to plant in good large masses as far as the planting goes. The effect is paltry unless this rule is adhered to. The little blue Hepatica is a wonderful Grass plant when planted as thick as Daisies, which it just matches, and is as much at home in such quarters. Famed Battersea Park—not to mention other places—has yet to be seen in a new and better aspect when its glades and banks have been furnished in this semi-wild fashion.

POTATO PLANTING.—*Farm and Home*, the newly started penny agricultural newspaper and companion to *Gardening Illustrated*, tells us that we plant our Potatoes far too close together, and no doubt that is so, but the great difficulty is to get cultivators to believe it. They are very slow about coming round to Mechi's "peck of Wheat to the acre," or even a bushel. The German was right when he said that we planted a dozen Potatoes frequently where one would be enough, and that we should plant the eyes undermost to make the stems grow up as widely apart as possible and give all room, his theory being that the "extension system" was best for the Potato, that "stemming" or disbudding was wrong; the more shoots the more Potatoes, only let the shaws have room. A Potato planted wrong side up sends, we are told, it stems up to the surface in a circle 3 ft. wide, and, placing a hil-

lock of earth in the centre of the circle so as to cover them, or earth them up, every plant becomes an independent plant, producing an abundant crop. Wide planting means less cost for seed. *Farm and Home* states that from one pound and a quarter of Potatoes no less than two bushels were produced the same season. The Potatoes were planted 6 ft. asunder.

THE ROYAL HORTICULTURAL SOCIETY.—Sympathy will no doubt be felt for those who have suffered pecuniarily by the decision of the Court of Appeal on the case between the society and the commissioners of the exhibition of 1851, but the fate of the horticultural society's gardens at South Kensington has long ceased to be a matter of interest to the horticultural world generally, because probably it never was a particularly horticultural institution. Its creation distracted attention from Chiswick, which was and is the only useful and truly horticultural appanage of the society that the horticulturists took any interest in, and worked evil to both. In short the society attempted more than it could perform, and from being the scientific and useful horticultural institution contemplated its whole existence has simply been one impotent struggle to meet its liabilities, and the original object has been for long all but lost sight of in the effort to raise the means of existence by any likely plan, horticultural or otherwise. It would be really gratifying to know that some manageable and unencumbered institution had taken its place able to work and pay its way.

An article in the *Standard*, by one not ignorant apparently of the society's history, declares that it attempted to combine scientific horticulture with popular recreation of a kind to procure sufficient gate money to defray that expense, and succeeded in attaining neither. A display of ribbon borders and carpet beds, with an occasional band of music to attract fashionable loungers and an occasional horticultural exhibition, used by the leading suburban nurseries as a means of advertisement, "is a hybrid," says your contemporary, "which is not likely to be either instructive or remunerative." Its aim was to be fashionable, popular, attractive, instructive, cheap, and scientific, "and it has succeeded in being none of these things." Such is the public verdict, not perhaps altogether just or true, though confidently given and shared in by not a few who have watched the society's doings since the beginning. Whatever may happen in consequence of the recent decision, Chiswick, we apprehend, will still be available, and the Royal Horticultural Society's energies concentrated there may accomplish much that would really interest the horticultural community and secure its favour and interest in a way that South Kensington has never done.

THE INDIAN CRESS.—New varieties of this old favourite continue to be sent out. The bedding-out "art" encouraged a strain of exceeding dwarf varieties of distinct and brilliant colours, while the uses to which the plant can be put in its more appropriate character as an ornamental climber have been comparatively lost sight of. The common *Nasturtium* is hardly equalled by any annual or biennial as a climber for hurdles or rustic fences, and it will grow and flower in any exposed situations. Scrambling, tall growing varieties of the telling and distinct colours of some of the dwarf kinds are what are wanted most. Endless varieties can be raised from seed, of course, and seedlings grow best, but the named kinds are most effective and distinct. Some time ago we saw carefully trained up a house front a number of *Nasturtiums* of glowing

scarlet colour that attracted much attention, few people supposing the plant to be the common subject it was till they went close to it. One fails to understand the anxiety manifested to grow that disappointing species, *Tropæolum speciosum*, when the common kind can be substituted to such good purpose if it be grown and trained with ordinary care, and probably raisers of new sorts will turn their attention to the production of climbers of free-flowering habit and more brilliant colours.

ASPARAGUS PLUMOSUS.—Of the "new things" continually being sent out, probably not one in a hundred ever becomes common or popular; but our surmises will be wrong if this new ornamental foliaged plant does not take the popular taste and keep it. It has only one apparent fault—it seems to be very easily grown. In the estimation of some it is superior to any of the Filmy Ferns, and does not need the glass cupboard treatment that seems necessary to the existence of the latter, rendering them perfectly useless for ordinary decorative purposes. An illustrated advertisement of this *Asparagus* in the papers at the present time gives an excellent idea of its appearance; only the deep green of the foliage is wanting. There is nothing at all like it among foliage plants. PEREGRINE.

TREES AND SHRUBS.

VARIABLENESS OF CONIFERS.

MANY Conifers, especially the Cupressineæ, at one time regarded as distinct species, are in reality but immature or sterile forms of well known kinds; while others, when fully developed, clearly show that they belong to a different genus from that under which they were at first placed. In the *Retinosporas* this is especially noticeable, some writers including under this head about a dozen species, while others reduce them to a couple, viz., *R. obtusa* and *pisifera*; of the latter *R. squarrosa* and *plumosa* are held to be undeveloped forms, the others being classed under the several heads of *Thuja*, *Biota*, and *Chamaecyparis*. To whatever genus they may properly belong, however, for all horticultural purposes the names under which they are now known are sufficient, and any attempt to change them now would only add to the confusion already existing on the subject; besides which cases of reversion to the original are in most kinds of rare occurrence, but still enough to show whence they were derived. The best exemplification of this gradual change of character is to be found in *R. dubia*. This is generally seen in the form of a small compact bush, with needle-shaped leaves of about one third of an inch in length, and bearing a general resemblance to *R. squarrosa*, but with less glaucous foliage and more bush-like than that kind. Although this is the common form of *R. dubia*, yet it occasionally produces branches indistinguishable from those of the American *Arbor-vitæ* (*Thuja occidentalis*), and if these are taken off and struck they retain their *Arbor-vitæ*-like character. Again, in *Thuja Elwangeriana*, or *Retinospora Elwangeriana*, as it is called by Gordon, we have a small compact growing variety of *T. occidentalis*, though around the base and occasionally interspersed among the other branches may be found unmistakable pieces of *Retinospora dubia*, and if these be struck they maintain their character permanently, while in its turn *Elwangeriana* will often produce shoots which decidedly belong to the American *Arbor-vitæ*. Thus *R. dubia* sometimes at once reverts to *Thuja occidentalis*, and at others the same state is reached through a series of gradations. Instances of the same changes in an opposite

direction are almost unknown, although the *Retinospora* undoubtedly originated from a seed of the *Arbor-vitæ*. Every one conversant with the raising of Conifers in quantity from seed must have noticed that some show their true character at a much younger stage than others. Here and there, too, are to be seen miniature hedgehog-like plants, with only the primordial leaves developed, and if cuttings of these are taken and struck, this peculiarity becomes more or less fixed, sometimes breaking into character quickly, and at others remaining in their young state for years. If from a botanical point of view many of the *Retinosporas* would be ignored, the reverse holds good from a horticultural standpoint, as their ornamental properties are of a high order, and from the variety among them the uses to which they can be put are numerous; thus *R. obtusa* and *pisifera* form beautiful isolated specimens, and are free and vigorous, while *R. squarrosa*, *plumosa*, and *filifera* are smaller growing, but equally desirable, and for permanent bedding, rockwork, or similar purposes all the dwarf forms are well adapted, as they are always neat and bright looking, and among them is to be found great variety both in habit and colour. Another consideration is the fact that they are all easily increased by means of cuttings, and in this respect, as in the case of all Coniferae, the shoots bearing young foliage are much easier struck than those that are more mature. This is especially conspicuous in the case of the Junipers, shoots of *J. chinensis*, for instance, bearing long pointed leaves, being comparatively easy to strike compared with those which have assumed the imbricated scale-like leaved stage. The various kinds classed as *Retinosporas* are:—

R. ERICOIDES OR JUNIPEROIDES.—This is a compact-growing shrub, which attains at most only a height of 3 ft. or 4 ft., and bears sharp pointed decussate leaves, which during the growing season are bright green, but in winter are of a brownish purple hue. In its ordinary state it does not fruit; there are, however, occasionally produced shoots which fruit, and these have all the characters of the Chinese *Arbor-vitæ* (*Biota*

R. LEPTOCLADA of gardens is a pretty pyramidal shrub of a bluish grey colour, very suitable either for the shrubbery or for pot culture. This *Retinospora* is also known as the *Chamæcyparis*.



Retinospora dubia: showing the transitional growth.

paris andelyensis, and originated as follows: Amongst seedlings of *Cupressus thuyoides*, or *Chamæcyparis sphaeroides*, in the nursery of M. Cauchois, at Andelys, in France, was one which differed from the others: this was propagated and sold to Messrs. E. G. Henderson, by whom it was sent out under the name of *Retinospora leptoclada*. The *Retinospora* described by M. Carrière, in the *Revue Horticole*, as *R. leptoclada* of Siebold, is quite a different plant, bearing long, sharp-pointed, glaucous leaves, and fruiting when in that stage. *R. obtusa*, in Japan, forms a large tree 60 ft. or 80 ft. in height, and with us, especially if in a somewhat moist situation, it is of free growth. Its form is that of a blunt pyramid, and when 8 ft. or 10 ft. high it is a charming object; the beautiful frond-like branchlets overlap each other, and in some cases the tips of the shoots droop like those of *Cupressus Lawsoniana*, while in others they are more rigid. It is undoubtedly a distinct species, and belonging to it there are both yellow and white variegated kinds, in which these colours are interspersed with the normal green shoots. In the Fern-like *R. filicoides* the branches are long, and furnished with shoots of branchlets of an equal length. This is a very distinct variety.

A weeping form (*R. filifera*) comes next. In this the branchlets are reduced to long cord-like appendages, bearing the same relation to *R. obtusa* as *Biota pendula* does to the Chinese *Arbor-vitæ*. In *R. lycopodioides* the branches are crowded together, and the branchlets thickened and crested in a singular manner. The dwarf forms of *Retinospora compacta* and *pygmæa* are very distinct, the first forming a dense, compact bush, and *pygmæa* a low spreading but pretty plant, one of the most suitable of all Conifers for rockwork. There are two kinds of a golden hue, like that of the golden *Arbor-vitæ*, viz., *aurea* and *gracilis aurea*; the first is only a yellow-leaved form of the type; in the second, besides the colour, the ends of all the shoots are pendulous. *R. pisifera* has altogether lighter and more feathery foliage than *R. obtusa*, but it is more liable than that kind to lose its branchlets unless kept moist. Of this there is also a golden form, and it is probable that *R. plumosa* and *squarrosa* are but varieties of it, as they sometimes produce shoots that differ in no way from it. From a horticultural point of view they are, however, sufficiently distinct, the first named (*R. plumosa*) being of medium growth, the branches plume-like, and the colour bright green. Of this there are two forms, one of which when growing is wholly yellow, and the other creamy white, but



Young plant of *Retinospora ericoides* or *juniperoides* (life size).

both become green as the season advances. *R. squarrosa* is a medium sized, much-branched sort, the leaves of which are arranged in opposite pairs so as to give the branchlets a tetragonal or four-sided appearance. Although instances have occurred in which *R. squarrosa* has produced branches identical with those of *R. pisifera*, from which no doubt it was derived, yet it is so beautiful and distinct that no fear need be apprehended of mistaking it for any other, a prominent distinguishing point being the intense glaucous hue of the leaves, which in some plants are almost white. In this respect it is unsurpassed by any of the Coniferae.



Branch of *Retinospora juniperoides* or *glauca* (adult form with fruits).

orientalis), even to the cones, thereby proving it to be but an undeveloped form of that plant.

The last, *R. tetragona aurea*, is a dwarf, compact, slow growing kind, the branches of which are four-sided from the arrangement of the leaves, and bright yellow, a colour which becomes greener as winter approaches, and is limited to the current season's growth. For rockwork and similar situations, this *Retinospora* is well adapted.

A plant that has proved a stumbling-block to many is *Biota meldensis*, which has been referred to *Retinospora* and also to *Juniperus* by different persons, and among the many suggestions as to its origin, one is that it is a hybrid between *Biota orientalis* and *Juniperus virginiana*, as, although it was raised from seed of *B. orientalis*, yet plants of the *Juniper* were in close proximity, and from them it was thought the flowers had been fertilised. This theory, too, as regards its origin, is supported by the reddish hue which it acquires during winter; nevertheless, like another of that colour (*R. ericoides*), it is undoubtedly nothing more than a form of *Biota orientalis* with the young foliage only developed. Such changes are frequently met with among Conifers; thus *Cupressus funebris*, clothed when young with sharp-pointed glaucous foliage, would not be recognised when the leaves become scale-like and closely pressed to the stem, and besides the foliage the whole habit of the plant varies. When young it forms quite a compact bush with short stiff branches, but when it gets older it assumes a more erect habit, the branches become longer and pendulous at the tips, thus giving it a graceful, weeping appearance. Among a number of seedlings of



Retinospora leptoclada in a young state.

Cupressus torulosa was one in which the juvenile foliage was retained long after the others had assumed their proper character, and up to the present it remains the same, being now, after some ten years' growth, not more than 1 ft. in height, and greatly resembling a dwarf *Retinospora*.

Amongst *Junipers*, again, many changes take place. *J. virginiana*, *chimensis*, and especially the Pencil Cedar (*J. bermudiana*), and *J. japonica* all quite alter in character as they become mature. The last, however, which, in its young state, is a dwarf bush, bearing very prickly needle-like leaves, will often long remain in that stage before the closely pressed scale-like foliage is developed. Some of the Pines produce solitary needle-like leaves for a considerable time while young. M. Hochstetter, superintendent of the royal gardens at Tübingen, claims to have completely fixed that character in the case of *Pinus canariensis* and *Pinea*, thus producing by means of propagation dwarf hedgehog-like plants with solitary leaves. No doubt

other changes have been noted by close observers which would serve to enlighten us as to the origin of some of the so-called species; thus a fastigiata shrub commonly known in gardens as



Retinospora leptoclada (Hort.), *Chamaecyparis andleyensis* (Carrière).

Podocarpus Koraiana, some 4 ft. or 5 ft. in height, with the foliage arranged all around the stem, will sometimes throw out a horizontal



Branch of *Retinospora leptoclada* (Siebold) according to Carrière. (Life size, with fruits.)

branch with two rows of leaves exactly similar to *Cephalotaxus pedunculata*, thus proving it to

be but an upright variety of that cluster-flowered Yew. Both the horizontal and upright forms were introduced from Japan as two distinct plants (and practically they are), yet the circumstance just related proves that such a case is analogous to that of the common and Irish Yew.

ALPHA.

VARIETIES OF RHODODENDRON ARGENTEUM.

I AM collecting various types of this *Rhododendron* and attempting to classify them. It is very curious how many types are to be found in this country, and it will be interesting to ascertain, if possible, whence they are derived. At Kew there are no fewer than three types, to which I have never seen the flower. From Messrs. Downie and Laird, of Edinburgh, from Glasnevin, from France, and elsewhere I have received many types, and several that seem intermediate between *R. argenteum* and *R. Falconeri*. These last may be natural hybrids, for Sir J. Hooker relates how "on Tonglo, as it approaches 10,000 ft., *R. argenteum* is suddenly replaced by *R. Falconeri*," so that in certain localities the species grow side by side. I must say, however, that Mr. Sykes Gamble, conservator of forests at Darjeeling, writes to me, "I should say *R. argenteum* is pretty constant." The variations I have found are in the leaf, in the stigma, in the number of the stamens, in the lobes of the corolla, and cells of the ovary, as well as in the size, colour, and markings of the corolla. Herbarium specimens differ very much in some of these particulars, and the plates that have been published also. The flora of British India abolishes the name *R. argenteum* as a specific name, replacing it by that of *R. grande*, which was discovered by Griffith in Bhotan many years ago, so that to that country we must look for the normal type. Griffith's herbarium specimens are very small, but Wright, who named the species, says, "He (Griffith) briefly characterises this species in a single word, 'magnifique,' which idea I have attempted to convey in the specific name."

Valewood, Haslemere. J. H. MANGLES.

A fragrant hardy shrub.—Some nine months ago I moved a plant of *Azara microphylla* which had been planted upon a lawn in soil little better than stiff clay impregnated with stagnant water, in consequence of which it was in a wretched condition, and would in all probability have been dead by this time had it not been moved. I made a compost of fibrous black soil, sand, and well rotted manure in which I planted it. Very soon it showed signs of recovery, and it has since made vigorous growth. During the past glorious weather it has been literally covered with flowers, which, though insignificant in point of showiness, are deliciously fragrant; for at least 8 yards round the plant the air is laden with a perfume which resembles that of vanilla in a marked degree. It is a most desirable evergreen shrub, the foliage of which is small and glossy, and borne upon spreading branches of a drooping character. The plant to which I allude is about 8 ft. in height with a proportionate spread of branches. It is a shrub which should find a place in every garden. It may be grown either in the form of a bush or upon a wall. Some authorities give June as its time of flowering.—C. D.

Arbutuses.—The Strawberry tree (*A. Unedo*) is a native of the south of Europe and the Levant, and it is also found near Killarney growing luxuriantly on limestone rocks, whence it has probably been brought from Italy or Spain. It grows from 15 ft. to 20 ft. in height, and bears quantities of greenish-yellow blossoms in October and November, and at the same time or a little later in the season bright yellow and red berries. The Oriental *Arbutus* (*A. Andrachne*) is more tender, but superior in beauty both of leaves and flowers, but it rarely bears fruit in this country. *A. hybrida*

is evidently a hybrid between the two last, agreeing with the former in general appearance of foliage and with the latter in flowers. It is a hardy ornamental tree with deciduous bark, and it does not bear berries. The scarlet varieties, *A. Croomei* and *rubra*, are also very desirable, and associate well with microphylla and the small-leaved and double forms. The Bearberry was until lately included under *Arbutus*, from which, however, it is distinguished by its berries containing only from one to five instead of a great number of seeds. It is strictly an alpine plant, and is found wild in the mountainous parts of England and Scotland as well as on the Continent. The berries are greedily devoured by game, especially grouse. —ANGUS D. WEBSTER.

FLOWERING CURRANTS.

THESE constitute one of the most interesting as well as showy groups of shrubs now in flower at Kew. Of *Ribes sanguineum* there are several varieties, amongst which may be named the light coloured kind called *albidum*, with flowers of a delicate bluish hue, while the deep-tinted forms are *atro-sanguineum*, which is darker in colour than the ordinary kind, and *atro-rubens*, on account of its deep rich hue a very desirable form. In *glutinosa* the flowers are pale pinkish lilac, and in *Gordoniaum* they are deeply suffused with yellow, while those of the double-flowered sort are not yet open. The golden-flowered *Ribes aureum* is also very attractive, and of this there are the following varieties, viz., *palmatum*, the leaves of which are deeply palmate; *serotinum*, later in flowering; and *flavum*, deeper in colour than the type; but the difference between the whole of them is not great, and the ordinary form is quite equal to any of them. So showy is *Ribes aureum*, that one wonders it is not more common than it is. Another species is *R. sub-vestitum*, a stout, strong-growing bush, the branches of which are densely covered with reddish coloured spines. The flowers, which droop Fuchsia-like from the branches, have reflexed sepals of a brownish crimson colour, and the petals are white. Although not showy, this is a bold and distinct kind.

H. P.

SHORT NOTES—TREES & SHRUBS.

Acubia berries.—Are these poisonous? How often does the shrub bear berries?—READER. [*Acubia* berries are not, we think, poisonous, but we would not advise you to eat them. If male and female plants are intermixed, the latter will probably bear fruit every year.]

Ledum buxifolium.—This is a plant of short, twiggy, yet erect growth, reaching a height of about 1 ft., and each shoot is terminated by a cluster of flowers which when in bud are pink, but become white as they expand. There is yet a smaller kind (*thymifolium*) resembling this except in size. Both do well in the American garden. —ALPHA.

Rhododendron Thomsont.—I planted this *Rhododendron* out of a pot about four years ago. It is now 5 ft. high and about 3 ft. through, and is bearing four trusses of bloom. It had no protection in the severe winter of 1880-51. It is, however, sheltered on the east by *Rhododendron* Lady E. Cathcart, *Kalmia latifolia*, and *Weigela rosea*, each 10 ft. high and 8 ft. through. I never before saw *R. Thomsont* in bloom so far north. —G. J. CLOKE, *Alghurth*.

Rhodora canadensis.—In general aspect this plant resembles an *Azalea*, but it comes into bloom long before the first of the *Azaleas*, represented by *A. mollis*, commences to unfold its blossoms. It is a native of the United States, and succeeds well under the same conditions as the other American *Ericaceae*, amongst which in the old collection at Kew there are some plants of it in full flower. —H. P.

Double-flowered Blackthorn.—One of the best flowering shrubs we know is the double-flowered Blackthorn. As we neglect our native evergreens, and plant things that perish in hard winters, forgetting too often the varieties of Holly, Box, and Yew, so we pay too little attention to some of our native flowering trees and shrubs. The double *Sloe* in this instance comes in fine condition from Mr. Stevens, of Byfleet.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

SEVERAL flowering shrubs are now contributing to our indoor decorations. A large and high table bouquet is of long arching shoots of *Berberis Fortunei* with *Fertia japonica*, double and single, and *Forsythia*, all springing from a more solid base of *Berberis Aquifolium*; this makes a fine mass of yellow and orange. A tall and rather slender glass holds a group of the more delicate *Daffodils*, some of the many varieties of *incomparabilis*, and *Jonquils*, with the fine Rush-like leaves of the latter, while a jar of grey German pottery has a large bunch of their heavier brethren, mostly of pale colour—*Sulphur Phoenix*, *cernuus*, *albicans*, and *bicolor* *Horsfieldi* with its broad, solid foliage. A brown tripod bowl of Doulton ware holds *Wallflowers*, red, deep gold colour, and red-purple. Flowering branches of common *Laurel* are in a brass Indian pot; they are easiest arranged in something that has projecting shoulders below a narrower neck—such as the commonest shape among Greek vases—that each branch passing over the neck may be kept in place by going under the shoulder on the opposite side; some such arrangement is necessary from their rather horizontal natural position. *Hyacinths*, warm white, pink, and red, fill a large bowl. They are heavy-headed and want something stiff to support their stalks, such as twigs of *Thorn*, *Box*, or *Holly*. Another bouquet of *Hyacinthis* of the cold colours—pure white, blue, and purple. Pale *Neapolitan* *Violets* and some slight sprays of *Rosemary* with its delicate blue-grey flowers combine well in a dress bouquet, worn with a gown of a black lace-like material. The dinner-table is dressed with *Wallflowers*, rich yellow, golden-brown and blood-red—a splendid mass of colour under lamplight. As pot plants we have *Indian Azaleas*, red, pink, and white.

FLORAL DECORATIONS.

JAMES HUDSON, GUNNERSBURY HOUSE.

GARDENIAS will now be yielding an abundant supply of their highly fragrant flowers. I find it a good plan to cut them before they are fully expanded, as thus treated they keep their colour longer. Flowers that begin to open early in the morning are fit to cut the same day. If it is desired to keep any for a few days they should be put into a cool, dark place till wanted. Where the stock of plants is large and healthy the best plan is to cut them with stems sufficient to secure some of their own foliage, than which nothing with which they can be associated is so suitable. They may be arranged effectively in a flat glass dish in company with buds of *Madame Falcot* *Rose*, a little fresh Moss or *Selaginella* making a nice groundwork for them. *Stephanotis*, which will now be coming on fast, may be arranged in a similar manner with the same kind of *Rose*, or with a pink or dark red variety instead. The *Flamingo Plant* (*Anthurium Scherzerianum*) is now expanding its showy spathes, but it is a pity to cut them except for very special occasions. They look best, perhaps when cut, arranged in specimen glasses with a spike or two of *Hoteia japonica* and fronds of a durable Fern, such as the smaller kinds of *Davallia*. Spikes of either *Lachenalia tricolor* or *pendula* I find to be most serviceable, and also very durable in a cut state. They associate well with white *Azaleas*, *Deutzia gracilis*, and a dark self-coloured *Cineraria*. Lately I have used the same spikes in several different arrangements, finding them to keep so well. For specimen glasses *Camellias* are still doing excellent service, and trusses of *Azalea mollis* make a pleasing change. For entwining around the slender stems of glass vases, or for suspending from tall trumpet vases or epergnes, an excellent subject is just now in perfection, viz., *Chorozema Chandleri*, than which nothing in the way of a conservatory climber is prettier at this season of the year. We have it here festooned over an

arch about 10 ft. high, allowing it full freedom of growth. From this plant we often cut long sprays for the purposes just named. For coat flowers or button-hole bouquets there is now an abundance of appropriate material from which to select. Buds of Tea-scented *Roses* are always admired, and among the very best are *Souvenir d'un Ami*, *Niphetos*, *Madame Falcot*, and *Josephine Malton*. Small sprays of *Epacris Eclipse* are also very effective when nicely arranged. *Carnation Grenadin* is just now becoming invaluable for this kind of work.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Chamaerops Fortunei (*Chusan Palm*).—This, though classed and cultivated as a greenhouse Palm, having in many parts of the kingdom withstood without or with but a slight amount of protection the recent rigorous winters, may now, I think, be included in the hardy list; at any rate, it may safely be classed as one of the hardiest amongst plants suited for sub-tropical bedding, a purpose for which it has proved invaluable, being specially effective in isolated positions on turf, as a recess plant, or for breaking the sometimes unavoidable formality that exists when a number of beds have to be arranged in a restricted space. Plants of it when used for the latter purpose must be grown in large pots or tubs, and be given house room in winter; but where permanent effect is desired, the situation a sheltered one, and the sub-soil well drained, then by all means plant out. We have a couple of plants of this Palm here that have withstood all weathers since 1869; they are now nearly 14 ft. high, and in the most luxuriant growth. Even small plants of it, too, have just a successfully defied our sharp winters. Moderately stiff loam is the soil in which they appear to do best, and when planted out it is necessary to apply a fresh top dressing of this annually. Those in pots or tubs, however, do not need this if during the summer they are given manure water once a week. They are raised from seeds which germinate in about a month if afforded a bottom heat of 75°.

Herbaceous borders.—All plants in these will now be above ground, and therefore as soon as the necessary digging and manuring has been done all vacant plots should be filled up with *Gladioli*, *Hollyhocks*, *Campanulas*, *Antirrhinums*, *Pentstemons*, *Foxgloves*, *Violas*, *Pinks*, *Sunflowers*, *Sweet Peas*, and other suitable annuals. The whole of the border should be lightly forked over, and stakes should be placed to kinds liable to be injured by winds or heavy rains. *Delphiniums*, *Dielytras*, and the flower-stems of *Geums* are among those that at the present time need supports. Any bare spots near the margins of borders should be sown with *Mignonette*, *Virginian Stocks*, and dwarf *Silenes*, or, as soon as weather permits, be planted with *Lobelias*, variegated *Mesembryanthems*, *Verbenas*, and *Heliotropes*.

Planting hardy bedders.—In order to keep pace with the work to be done at the general planting-out time, every kind of plant that can now be put out should be so. Edgings and groundworks consisting of hardy *Sedums*, *Saxifrages*, and *Cerastiums* are what we are now planting; next will come *Violas*, *Verbenas*, *Calceolarias*, the hardier succulents, and *Golden Feather Pyrethrum*, and when these have all been planted the remaining vacant plots will be labelled and the plants put out as soon as they can be safely exposed. Meanwhile some of the plots will have special attention as to soil; those for *Alternantheras* will be given a dressing of hot-decayed leaf-mould and horse droppings; plots for *Calceolarias*, *Violas*, *Fuchsias*, and *Verbenas* will receive an extra good dressing of manure, and all the plots will be forked up and left rough till planted, in order that they may be subjected to the ameliorating influences of sun and wind.

General work.—Cuttings of tender kinds of bedding plants may still be put in, others may

be potted off, and so should seedling sub-tropical plants. The earliest sown Castor-oils and Solanums will now require a shift into 5-in. pots; old roots of Cannas must be divided, potted, and placed in warmth, and in order to make room for these gradually remove from the pits all the kinds that will stand a degree or two of frost. Tuberous Begonias should now be started into growth. Plant them in boxes, placing the tubers about 3 in. apart. The soil should be at least half leaf-mould; they will then transplant with abundance of fibres. Seedlings of the present year to be of much service during the coming summer will still need all the heat that can be afforded them, and about the middle of May they may be removed to cooler quarters. Our experience in the use of the current year's seedlings of these plants is such, that to any who may be depending on plants of that age we would say, "Don't." Be content to wait another year, and in the meantime grow on the seedlings as vigorously as possible; the tubers will then be in good order for next summer's arrangements. Tubers or roots of every other kind should also now be taken out of their winter quarters, and be placed in pits to start them steadily into growth. In the open air the most pressing duties are the completion of pruning shrubs and hedges, and the placing of supports to and mulching the roots of recently moved trees, an operation which the long continued dry weather renders necessary. Newly-sown lawns should be frequently rolled, and if neatness be valued, do not neglect to mow, and also to dress with soot or wood-ashes any portions of the turf that have a sickly hue.

PROPAGATING.

Selaginellas.—The propagation of these is generally regarded as but a simple matter, which is indeed true as regards the majority of them, but there are a few that are rather difficult to increase. All the creeping kinds may be divided to any extent desired, and the more woody ones, such as *africana*, *Wallichii*, *Lobbi*, and *Widenowii*, may be broken up and separated into as many pieces as have roots attached to them. Cuttings of the branches, too, of these large growing kinds may be put in, and if kept moist and close for a time soon root. Difficulty is often experienced, however, with the propagation of those Fern-like kinds in which the young fronds are unfolded from a single crown, and which therefore do not admit of division. Concerning this latter class, of which involutions and paradoxa may be cited as examples, cut off some of the fronds, and lay them on the surface of well drained pots or pans, filled with light sandy soil, securing them in their positions with small pegs, in order that the undersides of the fronds may press on the soil; then place them in a close case, and keep them moist. Atmospheric moisture alone will keep the fronds fresh, when after a time buds will be developed on various parts of their upper surface; from these roots will descend, and thus young plants will be formed, which when large enough must be pricked off. Besides this, *Selaginellas* may be raised from spores, which in the majority of cases are freely produced. These spores should be sown and treated in every way the same as those of Ferns.

Stove plants, such as *Dipladenias*, *Franciscas*, *Stephanotis*, *Rondeletias*, *Gardenias*, and others, may now be struck from cuttings made of the young shoots; they must not be allowed to flag, and therefore it is best to cut off but a few at a time. After inserting them, give them a good watering and keep them close and shaded. That useful Palm, *Rhapis flabelliformis*, may now be increased by division. With a little care the old plant may be turned out of its pot and the suckers removed, repotting the ant. In taking off the suckers make sure that roots are attached to them before separating them. Use good, loamy soil, with a slight admixture of sand, put them in as small pots as possible, and plunge them in a gentle hot-bed.

Double Primulas intended for division in about a fortnight will be the better now for being thoroughly cleaned and kept rather close till that time, as by so doing the formation of roots is hastened; indeed, after being so treated it is often possible to see the young roots just protruding from the exposed parts of the stem.

Cantuas.—These pretty, but seldom seen plants strike freely at this time if the cuttings are made entirely of the current year's growth, which will now be in a soft condition. If allowed to get hard they remain a long time without rooting, while the young soft shoots strike root in about a fortnight.

Tuberous Begonias will now require pricking off in pots or pans of good light soil, that is to say, seedlings of them, while tubers started a month ago will in many cases have grown sufficiently long for the tops to be taken as cuttings if required. When put in keep them close and shaded, but do not over-water them, as they are somewhat liable to damp. The useful double *Matricaria inodora* is rather difficult to winter, but those that survive, turned out of their pots now and divided into as many pieces as possible, will soon yield a good stock if placed in a cold frame where they grow away freely. T.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Daphne indica.—Young or medium sized plants that have done flowering should at once be placed in an intermediate temperature, for if only treated as ordinary greenhouse stock, the progress they make is slow, and the flowers they produce small and wanting in quantity. As to the amount of pot room given, it is necessary to adopt a medium course, for although this *Daphne* cannot bear over-potting, yet if the opposite extreme is followed, it gets into a stunted condition, out of which it is difficult to move it. Old examples are much benefited by the use of weak manure water at the time when they are making growth.

Room plants.—These are now in such general request that sufficient must be provided to meet the demand. In the selection of varieties, particularly of such as are grown for their handsome leaves, it is advisable to choose those that are capable of keeping up a healthy appearance under the adverse conditions by which they will be surrounded. Amongst the species and varieties that will bear the atmosphere of living rooms where gas or oil is burnt are some of the harder kinds of Palms, the green and variegated forms of *Aspidistra*, the India-rubber plant, and small growing green kinds of *Dracena* that will thrive in a greenhouse, such as *D. congesta*, *D. lineata*, and *D. broussaii*. The *Aspidistra* may be increased by division of its creeping underground stems now when commencing growth. The Palms are raised from seed, but their propagation is better left to those who raise them in large numbers. Small plants beginning to show their natural habit can be kept in a healthy state in very little pots by the use of manure water through the summer season whilst the most active growth is going on. Palms will grow in almost any description of soil, but where they are to be subjected to the rough usage indispensable from being located in rooms, loam imparts more substance to the foliage. The India-rubber is easily increased from cuttings made of the young shoots with some two or three leaves each; they will root if kept confined under a propagating glass either with or without heat, but where they can have warmth the rooting process will be sooner effected. Each spring a sufficient quantity of this description of stock, to take the place of that which gets too large, ought to be provided. Amongst Ferns that will bear full exposure to the atmosphere of a room may be mentioned *Davallia canariensis*, *Adiantum cuneatum*, *A. pubescens*, *Pteris serrulata*, and some of the crested forms of this Fern which attain a much larger size than the type, and *P. cretica* and its variegated variety. These, if regularly supplied with water and allowed to make their growth in the rooms in which they are to be kept, will produce fronds of

a hard, enduring character that will last much better than those that are grown in plant houses and afterwards moved to the rooms.

Pelargoniums.—Exception is often taken to the formally trained examples of the large-flowered and fancy varieties of these plants seen at exhibitions, and for ordinary decorative purposes it is not necessary nor desirable to either grow them to the size of exhibition plants or attempt the same form of training. But in other matters the general cultivator will do well to adopt the treatment that the exhibitors follow, which is first to induce the greatest amount of root formation of which the plants are capable, and afterwards to sustain them by liberal stimulants in the shape of manure water applied at the right time, which is when the flower-trusses are formed in quantity; without this the bloom will be deficient in size, and the foliage will be wanting in the rich green colour that adds so much to the general appearance. If the plants have all along been kept, as advised, through the winter close up to the glass, the shoots will be so stout and short-jointed as to require not more than half-a-dozen small sticks to each to give the requisite support. Many of the newer varieties of zonal Pelargoniums are alike remarkable for the size of the individual flowers and for the size of the trusses, but where the bloom is much required for cutting, this is a questionable advantage, as small bunches forthcoming in quantity are generally more useful. It is therefore well to select such kinds as will best meet the purpose required. In the case of young stock propagated last autumn, it will be advisable to stop the shoots sufficiently often to lay the foundation for bushy examples with a view of having them at their best towards the latter part of summer when the ordinary spring flowering plants are over.

Primulas.—Some seed of these, if not already sown, should at once be put in, so as to give time for the plants to get large enough to bloom strongly in the last months of the year, for if the stock is late and weak their flowering will be proportionately meagre. Hardy Primroses, such as the different coloured varieties of *P. cortusoides* with *P. japonica*, are deserving of pot culture wherever there is a greenhouse, for when well managed they are beautiful objects in no way inferior to the more generally grown Chinese varieties. Now is a good time to get up a stock; small plants procured at the present season will, if well cared for, make strong examples before the end of summer that will bloom freely next spring.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—During the last few days the sun's rays have been sufficiently powerful to injure plants exposed to them; but the careful cultivator, while he does not shade too much, will doubtless have prevented such an occurrence. Some Orchids will stand sunshine better than others, consequently they must be arranged according to their requirements in this respect. *Vanda teres* and *V. Hookeri* do not yet require shading. All the deciduous *Dendrobiums* do well, at least such as require a high temperature in the lightest part of the house. The evergreen species, too, of the *D. thyrsiflorum* type, after having been rested in a cool temperature, should be placed in the cool end of this house, i.e., if a Cattleya house temperature is not available. *Cypripediums* must be placed in a rather shady position, as some of them are easily injured by sunshine. We have had the leaves of *C. Veitchii* (superbiens) injured even under the shading. Last season a number of seedlings between that kind and *C. villosum* placed amongst other hybrids, although shaded with a thick blind, were injured, while the others were untouched. The whole of the *Phalenopsis* must be on the shady side of the house. *Angraecums*, too, do not succeed on the sunny side. We had a plant of *A. articulatum* which was doing well at a distance from the glass; thinking to get better growth it was suspended

about 18 in. from the roof, when it ceased to do well. It has been placed in its old position, and is slowly recovering. All plants making growth must be freely supplied with water.

Cattleya house.—Watering and shading must now receive special attention. The leaves of Cattleyas seem to absorb heat very rapidly: if touched by the hand after the sun has shone upon them in the morning for about a quarter of an hour, they will be found to feel quite warm, and if they were to be exposed for some time longer they would certainly be hurt, even if they did not show the injury immediately. We keep our thermometer in a partially shaded part of the house, and when it has risen about 5° by means of sun heat the blinds are let down. If the day should be sunny with few clouds they are left on until the sun has passed so far to the westward that no harm will be done, but we like to have sufficient of its parting rays to again raise the temperature a little. Then as to watering. If such Orchids as Cattleya Mossiae are examined, a mass of fine healthy roots will be found pushing out from the base of the last formed pseudo-bulbs; they are mostly above the surface of the potting material, and it is best to let them alone. I have known lumps of peat, &c., to be put over them to induce them to root into them, but it is better not to do so; they will run along a little on the surface and then push downwards. All plants that are doing this should be well supplied with water, and a moist atmosphere is also very desirable. Odontoglossums, such as *O. vexillarium* and *O. Roezli*, are pushing new roots freely from the base of the growing bulbs, and also require a considerable amount of water. *O. cinctum* is now starting freely into growth and showing its flower spikes, from which slugs must be kept; if these pests are numerous the young spikes must be protected by means of cotton wadding. *O. grande* and *O. Insleayi*, both autumn-flowering species, should be kept rather dry at the roots; indeed, it is best not to water them until it is seen that the compost is quite dry. We have tried these two species in the cool house, but they did not succeed; they are now doing much better in the Cattleya house; still, I have seen them do well with cool Orchids. Evaporating troughs should now be kept filled with water, and the house ought to be damped twice daily.

Cool house.—Many have their Odontoglossums and Masdevallias placed in a lean-to house facing the north; in that case but little shading will be required until the sun gets round on afternoons of sunny days, when it may be necessary to shade for an hour or so. If the house is exposed, say a span-roofed one running north and south, the shading will have to be let down very soon after 7 a.m. on the east side, and that on the west side about two hours later. Nearly all the plants in this house will require very considerable supplies of water; they seem to do best when the Sphagnum on the surface is growing freely. No rule can be laid down as to the quantity of water to be given, or how often it should be applied. Plants that are established and that have well filled their pots with roots will require it much oftener than newly potted ones, and much, too, will depend upon the form and position of the house. One advantage of a lean-to facing the north is, that the plants neither require so much water nor so much attention as those in a different aspect. Any Orchids that have been wintered in the warmer house may now be removed to this one. If the temperature of the two houses vary to the extent of say 10° , it would be well to increase that of the cool house say 5° , in order to meet the requirements of the plants newly placed in it half way. My experience in exhibiting, as well as in shifting plants from one house to another, has taught me that the fewer changes Orchids are exposed to the better, and cool Orchids are quite as likely to suffer as those from the East India house. We had about thirty Orchids in flower which were left at an exhibition last year for a week, many of them from the East India temperature, and none of them suffered except the Masdevallias, most of which lost their leaves. The

temperature of the house falls now to about 50° at night, seldom lower, even with the ventilators open a little all night.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Hardy fruit.—If not already done, Figs may be pruned and nailed or tied to the walls, care being observed that a space is not left to admit of a current of air behind the shoots. As I have before observed, pruning should simply consist of thinning out the shoots and arranging the past year's growths, so as to have an even spread of well-ripened shoots, studded with embryo fruit, all over the space allotted to the tree, and as all the fruit of any value will be found near the points of the shoots, the latter should never be shortened at the spring pruning unless young breaks are wanted to fill up vacancies.

Apriots bloomed very strongly, but not so early as we at one time anticipated; and as we have been free from very severe frost, an abundant crop of this useful fruit may be expected. Where broad coping boards and heavy coverings have been used, a little judicious management in their removal will be necessary. The boards will, of course, remain for some time longer, but the canvases must be taken off every day and put back at night on the approach of danger. Disbud grass shoots and keep a sharp look-out for the active little grubs whose whereabouts is easily detected by the rolled-up appearance of the points of the young shoots.

Peaches and Nectarines, now in full bloom, and many of the early kinds setting well, will require constant attention to keep them from aphid until it is safe to apply the usual dressing. Already Tea Roses on open walls are teeming with green fly, and unless the wise precaution of winter dressing the trees and walls with some insecticide has been observed, Peaches and Nectarines will soon be affected. Avoid the use of dangerous dressings until their strength has been properly tested. Our forefathers used soft soap, sulphur and tobacco water; their trees were kept alive for half a century, and if they did not cultivate so many kinds, they grew quite as good Peaches as we do.

Cucumbers.—With increased daylight and sun-heat these hard-worked and often abused subjects will now take heavy supplies of generous liquid, particularly where the roots are in pots, and the plants have been in bearing since the end of the past year. Good syringings overhead after the house is closed will also play an important part in keeping the foliage clean and healthy, as old plants in hot-water pits are sure to get more or less infested with spider, and it is only by constant application that this troublesome insect can be kept in check. From this time forward healthy plants will make rapid growth, and the usual stopping and dressing will require attention at least twice a week, as nothing more quickly resents neglect or suffers more from the handling and pulling about which invariably follows neglect. It sometimes happens that old plants show signs of faltering under bright sunshine, and require shading more or less every day. When this is the case, make speedy examination of the roots, remove all old manurial top-dressings and inert soil, dust with quinine, or water with lime water to destroy worms, frequently the cause of the mischief, and top-dress with fresh turfy loam, charcoal, or old lime rubble. Renovate the bottom-heat, and when fresh root action sets in feed with clarified liquid, but avoid the use of manure as a top dressing. Damp the floors and walls two or three times a day. Syringe the foliage overhead about 3 p.m. when fine, and close with sun-heat, which will run the house up to 90° . Maintain a good heat in manure pits and frames. Train and peg out the growths, add large lumps of turf and pieces of charcoal to the hills as the roots appear, and still be very careful in the application of water to the foliage, as the nights are very cold and sudden depressions when the

leaves are wet very often produce mildew. Sow a few seeds at short intervals for succession, and throw away all surplus plants before they become infested with spider.

Pines.—When the flowering process is over the early batch of Queens will derive great benefit from a light dewing over with the syringe after the house is closed for the day, care being observed that the quantity of water used is not sufficient to concentrate in the axils of the leaves and saturate the soil about the collars of the plants. Examine the plants once a week, and while avoiding indiscriminate watering, see that those actually requiring it do not suffer. If they are not overpotted, and roots are plentiful, give warm clarified liquid in a diluted form and weak guano water alternately, and produce a stimulating atmosphere by sprinkling paths and drying surfaces with the same, when the ventilators are closed for the day. Ventilation through the months of April and May, two uncertain months, will require constant vigilance, otherwise sudden external changes will cause great fluctuations, at all times injurious to plants which have been kept at a high temperature through more than half the winter. The safest and best course to follow is to keep a good heat in the bed, which will always prevent sudden depressions, to shut off fire-heat early, and to give sufficient air to draw moisture off the foliage before the sun strikes the roof of the house on bright mornings. If the latter is glazed with large squares of glass, a very thin shading for two or three hours each day may be necessary, until the still tender foliage becomes firmer and better able to stand bright weather; but, the roots being right, its continuance will not be needed. The old-fashioned practice of driving the fires to maintain a given temperature through all weathers having been given up, 65° to 70° at night and 80° to 85° by day, with a bottom heat of 85° to 90° , will suit Pines in every stage after they are started into fruit, and successions will do very well under an all round reduction of 5° . If extra stock is not wanted do not let fruiting plants carry more than one sucker each. Remove all gills from the stems at the base of the fruit, and secure the latter in an upright position by placing two sticks to each plant and passing bands of matting above and below the fruit.

Melons.—Keep the atmosphere of the house in which early Melons are setting their fruit moderately dry with a circulation of air; fertilise all blossoms on fine days, and give very little water to the roots until a good set has been secured. With pot plants this is not difficult, as the most troublesome setters can be brought into subjection by the application of bottom-heat, and withholding water from the roots. As soon as the fruits begin to swell syringing may be resumed to keep them free from spider; but water must be sparingly given at first, as a flush before the fruit attains the size of Walnuts would most likely cause it to turn yellow and go off. If the compost—stiff calcareous loam and bone dust—is dry and in a fit state for use as a top-dressing see that it is made as warm as the soil in which the plants are growing before it touches the stems, and guard against injuring them in its application, as sponker is often brought on by undue pressure, or the use of cold materials. As soon as the roots have taken to the top-dressing apply warm stimulating liquid as often as the plants can take it. Keep the bottom-heat at 85° , syringe at 80° on fine afternoons, and run up 85° to 100° after closing. Give a little front air at the close of the day, and let the night heat range about 70° .

Thin out and train the laterals on succession plants, pinch the points of leaders where they have covered two-thirds of the trellis, and induce a firm wiry growth by giving plenty of heat and air through the early part of the day. Make fresh sowings for succession and for planting in pits and frames after Potatoes and other forced vegetables are cleared away. Hardy kinds like Golden Gem answer best for this culture. In pits and frames keep up a bottom-heat of 85° by means of linings and cover the glass at night.

Earth up with fresh friable loam as the roots require it, using lumps of charcoal or broken brick to keep the soil away from the stems of the plants. Avoid wetting the foliage until the weather becomes warmer, as moisture is generally abundant where fermenting material is used as a heat-producing agent.

MARKET FRUIT GARDENS.

J. GROOM, LINTON.

GRAFTING is now an important operation. By means of crown or rind grafting Apples, Pears, and Plums are converted from unsatisfactory trees into fruitful and profitable ones. Top-dressing trees recently planted must no longer be delayed; it is the drought in spring before the roots get established that is so much to be dreaded. Last season a large quantity of Cob Nuts and Filberts were planted late on a south slope, and a severe drought followed. The greater portion of these bushes had each about a barrowful of manure spread over their roots, and amongst them not one failed, whilst of some left bare nearly half died, and the rest only just kept alive, but made no growth like those that were mulched. Orchards on Grass, to which farmyard manure was applied during the winter, will now need bush harrowing and rolling, at the same time picking off stones, and forking up Docks, Thistles, or Nettles. Orchard Grass should never be made into hay, but fed off closely, as is just now being done by ewes and lambs. Orchards or fruit gardens dug up roughly in winter should now have the soil made fine by means of prong hoes. Strawberry beds must be divested of weeds and heavily mulched with fresh stable manure, the good properties of which will get washed down to the roots by rain, and thus stimulate growth and form a clean, dry bed for the fruit to rest upon.

Birds must be kept off fruit buds either by powder and shot or by means of some other remedy, for if allowed undisturbed access to trees and bushes but little fruit will come to maturity. Sparrows are especially troublesome to Gooseberries, and bullfinches to Plums, Cherries, and Apples, and the next month will be their period of greatest activity. Hedges of White Thorn really well kept are a speciality in Kent; by repeated clipping they get almost as thick as walls; the only way by which they can be kept in good condition for many years is keeping them clean at the base. At this time of the year about 2 ft. on each side is lightly forked over; all Couch Grass and other weeds are carefully picked out, and after that hoeing a few times during summer will keep the ground thus treated quite clean, and the hedge will grow right down close to the soil. Roads and walks out up with heavy carting in wet weather must now be levelled and rolled. In large fruit plantations the cross walks may be of Grass; such pathways for carrying the fruit to the main walks or roads answer exceedingly well, and look at all times neat and trim. In young plantations recently planted the work of putting in a row of Potatoes will now need attention; a furrow made with a plough and the sets laid in answers well. Potatoes and fruit do well together for the first year or two after planting.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

Now is a capital time for sowing a good quantity of Peas. I generally form miniature Celery trenches for their reception, and earth up by cutting down the sides of the trench. When earthed they become level with the rest of the ground. My special variety is Laxton's Standard, a really good bearer and otherwise excellent Pea; but we have many more that are perhaps equal to it. Pride of the Market and Stratagems are both good where 6-ft. stakes and plenty of room is no object; Telephone and Telegraph are likewise two grand varieties. Broad Beans have now become an indispensable vegetable; eaten when about the size of large Peas, they are both delicate and delicious. Green Windsor and Mazagan are as yet the best; they are so easily satisfied, that they

will succeed almost anywhere provided the soil is rich. Stretch the line on the ground proposed to be planted, and dibble the seed in on each side of it at from 6 in. to 9 in. apart. Keep the hoe well at work amongst Lettuces and Cabbages, and, in fact, amongst all growing crops. A contemporary advises its readers to sow French Beans on sheltered borders. I agree so far as sowing goes; but it should be done in cold pits instead of outside. Even in the sunny south French Beans are not considered safe until the third week in April. I notice many inquiries about Carrots going backwards rather than forward. I always use gas-time with soot and burnt refuse, and apply it to the land at the time of sowing, and we have never any difficulty with our Carrot crop.

SOCIETIES.

NATIONAL AND CENTRAL HORTICULTURAL SOCIETY OF FRANCE.

The first show of spring flowers held by this society for the last eighteen years was opened on Thursday last, March 30, at the rooms of the society, 84, Rue de Grenelle, Paris, and well filled the three rooms devoted to the show. Although in almost every respect far inferior to what we are accustomed to in London, and even in our large provincial cities, such as Manchester, Birmingham, &c., this exhibition was not without its points of interest, and, being decidedly a step in the right direction undertaken by the society at the instance of its new and energetic president, Monsieur Alphonse Lavallée, must not be too severely criticised by me. I shall therefore confine myself to noticing a few of the principal exhibits produced thereat. To my mind the most interesting of all the exhibits was a group of well bloomed small bushes of that most free blooming hardy shrub from Japan, *Magnolia stellata* or *Halleana*, which should be in every collection of hardy shrubs, and attracted much attention on this occasion. The well-known seedsman, Messrs. Vilmorin, of Quai de la Mégisserie, Paris, also sent well-bloomed groups of their fine strain of dwarf growing *Cinerarias*, the result of many years of careful selection and hybridisation, and remarkable for the large size of their blooms as well as for the extreme compactness of their habit of growth. One variety that was especially noticeable was a very pure white, with extra large flowers, of which some thirty or forty well bloomed plants arranged in a bed, and edged with a double row of bright coloured *Hyacinths*, had a very striking and pleasing effect. There was also another variety of an exceedingly novel and pleasing shade of light blue, uncommon in this class of plants. The exhibits were all arranged with considerable taste, the whole of the sides of the principal room being lined with banks of small plants of Tea Roses in pots in bloom, but well grounded with Moss, so as to appear as if growing in a sloping border, while both ends of the room were filled with masses of well-bloomed *Camellias*. The centre of the room was occupied by a fine specimen of some tropical Palm in a large tub whose top almost reached the ceiling of the lofty room, and round the base were prettily grouped two crescents of bright-flowered Indian *Azaleas*, which had a brilliant and very pleasing effect. This society has hitherto only held one show in the early summer of each year, which has usually of late years been held in the Palais d'Industrie during the time of the holding therein of the annual exhibition of the Salon, which is equivalent to our Royal Academy of Fine Arts, but this year it hopes to hold three shows, the other two of which will probably be held in tents behind the Palais d'Industrie in May and August respectively.

W. E. G.

National Auricula Society (Northern Division).—The schedule of this branch of the National Auricula Society for 1882 has just been issued by the Rev. F. D. Horner, of Kirkby Malzeard, near Ripon, the hon. secretary and

treasurer. The exhibition is fixed for Tuesday, May 2, at the Town Hall, Manchester, and there are a good number of prizes, as usual, for Auriculas, Polyanthuses, and Primroses. It is expected that the show will be of unusual interest this year owing to the mild winter, as both Auriculas and Polyanthuses are promising well. Intending exhibitors should become subscribers at once, as by rule 2 no one can exhibit who is not a contributor to the funds of the society.—W. BROCKBANK.

GAS HEATING.

THE substitution of gas for coke is utterly out of the question in such a case as that to which "Allerton" refers (p. 226). Nothing is said of the form or size of the boiler, or the quantity of piping attached—important and necessary points to be informed upon before advising as to burners. An idea certainly is given of the boiler, as it consumes 30 tons of coke a year—enough to burn under a 5-ft. boiler heating over 2000 ft. of 4-in. pipe. In any case gas is of no use under an iron boiler, as it would take twenty times as long and cost twenty times as much as coke to heat it with only 500 ft. of pipe on it. Ordinary coal gas at present can only be used with advantage for small apparatuses and under a copper boiler. Where there is no permanent gardener, or he does not live on the premises, to attend to the furnace regularly, a gas boiler is particularly useful and cleanly, as when once lighted no further attention is required; a more even temperature, too, is obtained the night through than is possible with a coal or coke fire, which may just burn out at 3 o'clock in the morning, the coldest time of all. As a matter of comparative cost coke would have the advantage as a rule, but where gas is only 3s. per 1000 ft. and coal over 25s. a ton, there is but little difference for 100 ft. to 300 ft. of 2-in. pipe, unless the pipes are wanted very hot. For shorter lengths threepennyworth of gas will last twelve hours, where the same value of coal or coke would not keep in that long. There is no appreciable difference in the heat from a certain quantity of gas, whether burnt on the atmospheric or Bunsen principle, or in a properly constructed Argand or other burner, where it is so arranged as to ensure perfect combustion. The Bunsen is a smokeless burner; the others are not if the flame comes in contact with any metal. Bunsen's will occasionally go out, however, if the pressure of gas is greatly reduced, as often happens in the night-time. "Allerton" implies that his present boiler is in a bad position for stoking. Possibly an improved boiler of equal power, but occupying less space and consuming less fuel, would remedy the inconvenience.

B. W. WARHURST.

Higgle Road.

Garden hose.—We have received from the Irwell India-rubber Co. samples of their new overspun India-rubber garden hose, which for lightness, pliability, and strength seems all that can be desired. It is seamless, too, a great point in its favour, seams generally proving weak points in garden hoses.

THE Rev. H. Harpur, Crews we are requested to say, is leaving Drayton-Beauchamp on Easter Monday for a short Continental tour, and will be absent about three weeks.

Names of plants.—*W. B.*—*Oncidium sphecelatum*: *Celogyne ocellata* maxima (best form).—*A. S. H.*—We cannot name your Orchid without seeing more material, such as foliage, habit of growth, &c.—*E. C. (Tredgair)*: *Dendrobium macrorhynchum*.—*J. W. J.*—*Narcissus odoratus*; 2, *Callistemon rigidus* (not hardy); 3, send in flower.—*H. R.*—All varieties of *Federa Helix*. If you send better specimens, we will endeavour to name the others for you; 2, *Ceanothus*; 3, *Latifolia maculata*; 6, *albo marginata*.—*Mac*—*Narcissus odoratus*; *Spiraea prunifolia* fl. pl.—*C. E.*—1, *Begonia nitida*; 2, *B. fuchsoides* var.; 3, *Adiantum suttoni*; 6, *Gymnogramma tatarica*. We only name four plants at one time.—*F. C. W.*—*Tritonia crocata*.

COMMUNICATIONS RECEIVED.

A. P.—*T. A.*—*M. J. S.*—*L. W.*—*W. C. M.*—*G. J.*—*W. B.*—*W. E. G.*—*J. M. J.*—*S. W. J.*—*W. R. C. D.*—*R. G.*—*W. A.*—*Cambrian*. *J. G. C.*—*D. H.*—*H. W. T.*—*Mac*—*T. C. R. W.*—*H. J. E.*—*W. E.*—*A. E.*—*A. C. B.*—*B.*—*W. E.*—*G. C.*—*D. T. F.*

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

DAFFODILS.

Now is the Nemesis of mild winters and early springs in the clear cold nights and parching east winds from which the flowers are at present suffering, and no flowers suffer worse than Daffodils, especially the choicest flowers of the bicolor class. The delicate white petals of the perianth become flabby and withered under the dry air and scorching sun, and flowers which ought to last a fortnight are over in three or four days. The single Daffodils are in favour now. I heard of an amateur who has a fine show of Camellias, the flowers of which he lately offered to a London florist. Camellia flowers, however, were at a discount, worth hardly a penny each, but if he had some fine single Daffodil flowers to dispose of they would be worth something. Single Daffodils, however, until the last few years had long been neglected in gardens. A gap in their cultivation came, during which some varieties were probably lost, and others remained so long in obscurity that it became difficult to identify them with names which existed in old works on gardening. But the revival of a taste for hardy flowers has created such a demand for choice varieties of Daffodil, especially the single flowers, that the supply can hardly keep pace with it. I hope, therefore, that my good friend Mr. Peter Barr is now rewarded for his long and laborious work in this field of flowers, for I think it may truly be said that no florist in this generation has done more for any one class of flowers than Mr. Barr has for Daffodils. The classical Daffodil meadow of Elysium itself could not have surpassed the Narcissus garden at Tooting, and the shade of the mighty Achilles walking proudly over it with long strides could not have been more master of the situation than Mr. Barr amongst his several hundred varieties of Narcissi there. His last catalogue contains nearly 200 varieties; but I have had a private view behind the scenes, and know that this is nothing to the number which are now being nursed until there is a sufficient stock of them to supply the demand. Perhaps this number of varieties is not to be wondered at when we find that Parkinson, who published his work on gardening, called "The Paradise on Earth," more than 250 years ago, enumerates and describes nearly 100 varieties of Narcissus. It is interesting, by the way, to observe that the nurserymen of Parkinson's time gave the same trouble to their customers, for want of a central authority for names, as those of this day. He remarks about Daffodils that "Every one almost giveth names so diversely one from another, that if anyone shall receive from several places the catalogues of their names (as I have had many), as they set them down and compare the one catalogue with the other, he shall scarcely have three names in a dozen to agree together, one calling that by one name which another calleth by another, that very few can tell what they mean." Parkinson endeavours to prevent uncertainty about the kinds named by him by giving good figures of the greater part of them. Still, several of those figured appear either to have been lost to cultivation, or to have been insufficiently identified by modern authors.

In raising new varieties of Daffodil, more has been done of recent years for the class called *N. incomparabilis*, the Peerless Daffodil, than

for any other. Mr. Leeds, a Lancashire amateur, raised a large number of hybrids of this class, which are called after his name. Many of these approach very near one another in form and colour. Mr. Barr himself, under whose auspices they have been brought out, confesses that if the flowers are shuffled and submitted to him singly, he cannot always name his own children, and that height, foliage, and time of flowering are with some the only distinction. Besides, single specimens do not show characteristics like a mass grown side by side under similar conditions. But the most interesting and most easily cultivated, and the handsomest class are the true Daffodils, called the Trumpet or the Ajax section. The English wild Daffodil, or Lent Lily, is generally accepted as the type of the section, but the *Narcissus Telamonius flore-pleno*, or large double Daffodil of gardens, is by far the commonest in cultivation.

A considerable amount of uncertainty exists about the parentage of this Daffodil, but whatever might have been its pedigree, Parkinson's account of the first introduction of this now universal garden flower cannot fail to be interesting. He calls it Mr. Wilmer's great double Daffodil, and describes it so accurately as to leave no doubt of its identity. He tells us that it first flowered in the year 1620 (nine years before his work on gardening was published) in the London garden of one Vincent Sion, "who cherished it for many years without the bearing of any flowers." When it flowered "he sheweth it to Mr. John de Tranqueville, from whom he supposed he had received it (for from beyond sea he never received any); and Mr. George Wilmer of Stratford Bowe, Esquire, having likewise received it from him, would needs appropriate it to himself, and call it by his own name 'Wilmer's Double Daffodil.' Thus it seems almost certain that this variety, now to be found in every garden in England, sprang from some obscure source, and first appeared in England in the reign of James I. It is generally assumed that double flowers must have been raised by seed from some corresponding single form. The common double Daffodil of gardens often occurs so nearly single, with only one or two ribs at the bottom of the tube, that a comparison of it with single forms is easy. A few years ago no single form in cultivation came sufficiently near it to satisfy connoisseurs. Mr. Peter Barr used to refer to it to what was called the Spanish Daffodil, which had long been cultivated in Holland, and imported as *Pseudo-Narcissus* Trumpet major, but the resemblance was not satisfactory. About four years ago he received some single Daffodils from Florence, which grow wild in abundance in the meadows of the Arno, and these certainly come nearer to the single form of the common double Daffodil of gardens than any I have yet seen. A few of the most conspicuous of the other forms of this fine class of Daffodils may be mentioned. The *N. maximus* of catalogues imported from Holland, and sold at a very cheap rate, is one of the finest single Daffodils ever raised; it is probably a very old variety, being the great yellow Spanish Bastard Daffodil of Parkinson; the flower is of elegant shape, and of uniform rich golden yellow. It appears to be the same as the *obvallaris maximus* of catalogues, which claims to flower earlier. *N. major* and *N. spurius* are other good single varieties. *N. princeps* is both good and cheap, but rather later. *N. nanus*, generally called minor, is one of the neatest and certainly the earliest of all Daffodils. *N. lorifolius* and *N. l. Emperor* are splendid flowers, and do well in almost any soil, but the most attractive flowers of the class are the bicolors. The old *N. bicolor*, said to grow wild in Spain, and considered by Linnaeus to be a distinct species, has

been crossed and greatly improved. The tallest Daffodil with a golden yellow trumpet and pure white perianth is *Empress*, but the most robust and vigorous is *Horsfieldi*. There are many other fine varieties, amongst which bicolor *primulinus* and bicolor *sulphureus* are conspicuous.

It is worth knowing that all Daffodil flowers if cut as soon as open and put in water in a warm room continue to increase in size and become larger than if left growing in the open air. Mr. Peter Barr told me this, and I have satisfied myself by frequent experiments that it is so. In this way we may know how to make the most of our choice Daffodil flowers when parching east winds and hot suns prevail. All the Daffodils of this section flower well under glass, and are finer so treated than out-of-doors; they should be potted early in large pots, and not brought into the greenhouse until thoroughly rooted and established. For out-door cultivation, if new bulbs are required, get them as early as possible, and be sure that every day they are out of the ground tells against them. To bulbs of which the native soil is very dry and their climate rainless in summer, it may possibly be an advantage to be kept out of the ground in our country when at rest, but for Daffodils which belong to a climate like ours it cannot be. Some Daffodils, especially of the Jonquil and Hoop-peticoat section, require a warm, dry soil, but those of which I have been speaking like a strong and cool soil, and are all the better for an annual dressing of manure. Even with this the more vigorous kinds soon exhaust the spot in which they grow, or, if sufficient food is supplied, become so crowded that the bulbs cannot be properly developed. Once in three or four years they should be taken up and divided as soon as the leaves are withered, and planted again at once. The time to judge of each clump whether division is required is when they flower. If the clump is more leafy than flowery it should be marked for division when the time comes. Daffodils do not all increase alike. *N. Horsfieldi* will multiply threefold every year, whilst in the same soil *N. cernuus* and *moschatus* will hardly increase at all. When a sufficient number of any kind have been obtained, planting on the Grass of an orchard or back garden may be tried with advantage, as some varieties do better in this way than in the flower border.

Edge Hall, Malpas. C. WOLLEY DOD.

DOUBLE FLOWERS BECOMING SINGLE.

MR. FISH (p. 234) seems to think that the wild English Daffodil may be often potentially, though not visibly, double in its wild state, but those who have investigated its history most believe that it has never been found double in a state of Nature except in two places—one in Devonshire, the other in the Isle of Wight. I believe the truth to be simply this: some wild Daffodils are casually dug up when in flower, and carelessly planted in a garden already full of the large double Daffodil. In all probability they die at once, and if the planter ever thinks of them again, which he may do the next year or two years after, he finds nothing but double Daffodils, and jumps at the conclusion that the wild Daffodils have been transformed into great double Daffodils. As regards flowers reverting to single from double, the subject is an interesting one. I have at present on the top of one of my rockeries where the soil is poor a *Primrose* plant which I am sure is not a *Primrose* and is now bearing on a double root double, semi-double, and at least one perfect single flower, with a pistil and anthers. Daffodils also, especially the double forms of *N. incomparabilis*, revert to apparently single forms. I have never seen a true single form answering to the double Daffodil known as the Orange Phoenix, but I found in a cottage garden in Lancashire apparently single forms of it, having

rudiments only of the double petals inside the cup, and this preserves its character in my garden. I have also been told by experienced growers of Daffodils that it is difficult to keep the double *N. Tazetta*, so great is its tendency to revert to the single form. I agree with Mr. Fish so far that when a double form of a flower is born with such a constitution that it gradually turns out and supersedes its single, as the double Daffodil of English gardens has certainly done, it becomes objectionable; but I do not think I should vote against the publication of a double *Crocus*, for I admire the double *Colchicum autumnale* very much.

C. WOLLEY DOD.

Edge Hall, Malpas, Cheshire.

— Since reading the paragraph by Mr. Wolley Dod, challenging my statement as to single wild Daffodils becoming double under cultivation, I have consulted other members of my family who remember the details of our garden management, and they confirm me in my impression on the subject, and bear me out in my assertion that the next spring after being dug up from the meadows our single Daffodils became double. What impresses the fact on our minds is that for several years after the house was taken nothing was laid out for the garden, which was planned and bought out according to our directions, and was, therefore, perfectly empty. We stocked the borders with shrubs and Rose bushes from our London garden, with presents from friends, with contributions, more or less weedy, from the villagers, and, more than in any other way, by transplanting wild flowers, such as Primroses, Solomon's Seal, Dog Violets, and Wood Anemones from the lanes and woods. The single wild Daffodils which we were fortunate enough to find in the fields were for a long time the only bulbs in the garden, and, to our annoyance, they would come double. I may mention that the soil was unmitigated chalk, and that we never had an oz. of manure. We dragged the Daffodils up by the roots while in blossom, and planted them in large clumps. We never took the slightest trouble with our plants after they were once put into the ground, but left them to shift for themselves. Mr. Dod will hardly believe me when I say that in our garden watering was unknown. He tells us that he has tried in every way to produce double Daffodils from single, but probably it did not occur to so skilful a horticulturist, as he evidently is, to adopt so primitive a style of culture as ours. Plants are capricious things, and results are often obtained by accident which could not be achieved even by the proverbial patience and perseverance which are supposed to overcome all difficulties.—G. L.

ORCHIDS.

PRUNING ORCHIDS.

IN THE GARDEN (p. 228) I see that "J. S. W." criticises my ideas and practice respecting the pruning of Dendrobiums. Evidently my article on Dendrobiums has enlightened "J. S. W." on a few points as regards the growing and flowering of this class of plants. He can now talk of the possibility of back breaks, which he provides for by leaving 1 in. or so of bulb, instead of, as he first told us, cutting every bulb clean away. Then, again, he now tells us that it is best to be cautious about pruning Dendrobiums of the racemose section, for, says he, "no one ever knows whether the older healthy bulbs may flower or not." Don't they! Every Orchid grower, I say, not only knows when they will, but where they will flower from. Does "J. S. W." mean to tell us that he cuts bulbs, leaves, and all away? In this section the foliage is often retained for four years. If he does not do so, his pruning in this case is anything but severe. Indeed, the very plant he mentions as now having six bulbs, after being four years under cultivation, cannot have been very severely dealt with, and as the nine bulbs cut away may have been the first bulbs from the seedling state, there is no wonder the bulbs get larger, but still the plant has much to do before it can be called a

well-grown *D. thyrsiflorum*; 17 in. high is not bad, but the plant shown from here at South Kensington last year had bulbs over 30 in. "J. S. W." states that his plant has flowers on every spike; whoever saw an Orchid spike without flowers? A raceme of *D. thyrsiflorum* from a strong plant should have at least from forty to fifty flowers on it, and two such racemes are not uncommon from three-year-old bulbs. I cannot understand how such plants of the racemose section as *D. moschatum* or *D. Calceolus* can be grown for four years in a 44-in. pot unless the bulbs are cut away so as to keep the plant weak. I now repeat that to cut away any bulbs from a Dendrobium that are not spent is bad practice, unless the cultivator wishes to propagate and increase his stock. The reason I gave *D. nobile* as being the least likely to suffer from such treatment was from the fact of its free-growing habit, and also because a near neighbour of mine grew this species for a few years on the one-bulb system, that is, just as the plant had made its growth he would cut every bulb away but the current year's ones. He would then winter such plants among his *Ericas* without giving any water to the roots, and allow them in the following spring to come on as they liked; by the middle of May these one-year-old bulbs would be fairly well furnished with flowers, but not of first-rate quality. For two seasons these plants did very well, and when in flower the green foliage showed the flower out to advantage. After this each year saw the bulbs get smaller, till in the sixth year they had become too broken down to be worth much attention. I have also seen many of those rooted shoots which occasionally come on the bulbs of those plants that have lost their leading growths experimented with in many ways; some potted up without any old bulbs others with a little, and others with much. The last named will always do best, a fact which speaks for itself. This is an experiment which "J. S. W." would do well to make.

As regards four-year-old bulbs of *D. Wardianum*, so far from their being useless, they have, when separated from the plant, sufficient assimilated sap in them to make one or more young plants. But "J. S. W." says he has seen plants shown with one bulb in flower and three or four withered ones behind. Now, the fact of their being withered proves that they do not, as "J. S. W." imagines, rob the younger bulb. But how have they become withered? They were plump enough before the flowering stage. Is it possible that that one bulb in front has pumped them out? I take it that the old bulbs of Dendrobiums are simply reservoirs; they are filled when the roots are in full activity, when every surrounding condition favours development; they are emptied when the roots are inactive, when the very drought of the resting season prevents their assisting the bulbs in the flowering season. Will "J. S. W." say from whence the sap comes that is passed forward after the bulbs are cut away of which he speaks? or will he bring forward physiological grounds to prove that the cutting away of sound bulbs increases the vigour of a plant? or, more to the point, has he got one single Dendrobium that has been grown differently from what I recommend worthy of being exhibited as such? No, South Kensington is open to him as well as to me. So far as I can recollect, only one Lindley medal has as yet been awarded to a Dendrobium. That plant, I can assure "J. S. W.", was never pruned, with the exception of spent bulbs, nor were there any withered bulbs for the judges to see; in fact, plants grown as I recommend do not show withered bulbs when exhibited—they are taught better behaviour.

J. C. SPYERS.

Orchids from Manchester.—A few remarkably choice Orchids have reached us from Mr. Yates' collection. They represent among Dendrobiums some exceptionally deeply tinted forms of *D. nobile* and a form of *D. Wardianum*, with an elongated labellum flattened out in a peculiar way. Among *Odontoglossums* is a remarkable form of *O. crispum* with large flowers,

heavily spotted with cinnamon-red on a white ground similar to *Chesteronii*. A singularly handsome hybrid, apparently *O. mulus*, is likewise represented, the markings of which are chocolate brown on a yellow ground.

CŒLOGYNE CRISTATA.

THIS is eminently a "small amateur's" Orchid, as it succeeds in a very moderate temperature, blooms during January and February, and lasts about six weeks in flower. Later importations have given us some very superior varieties to the old kind generally seen, and which ordinarily produces from three to four blooms to a spike, while other and better varieties produce twice that number, the bulbs being of equal size in each case. We have three varieties of the plant, all cristatas, and five or six flowers to small sized bulbs are the rule with the best kind, the bulbs being yet small, and we hear of it producing nine flowers to a spike, with the expectation that even that number will be exceeded. It takes a bulb the size of a hen's egg to produce six or seven flowers of the old variety, but from present appearances the better sort is likely to yield more than twice that number. A raceme of the pure white waxy flowers, 1 ft. or more in length, would be a grand object. In the culture of the *Cœlogyne* no one finds any difficulty in producing fine bulbs and large plants, but all do not succeed in flowering it well, although that is a simple matter, too. When few or no flowers are produced either the bulbs have not been sufficiently ripened or the plant has been kept too warm. A warm greenhouse or intermediate house is the best place for it, and it does not require much shade. A thin canvas over the glass when the sun is powerful is all that is needed. In a summer temperature, ranging night and day respectively from 60° to 75° or 80°, the plant will grow rapidly, and begin to swell up its bulbs in September or October, from which period moisture should be gradually withdrawn, or only sufficient given to keep the bulbs from shrivelling, though a little shrivelling will do no harm. After the new year the flower-scapes will begin to push, and by April, or sooner, the flowers will be over, after which the new growth begins to push from near the base of the flower-spikes; consequently in cutting the flowers care must be taken not to remove the whole of the flower-stem to the base of the bulb. When the plants begin to grow it is time to pot the plants if they require it, but that is not necessary every year. Round or square pans 3 in. or 4 in. deep are best, and they should be nearly filled with crocks and charcoal, and the plant well raised up above the rim of the pan in a mound, using fibry peat, Sphagnum Moss, and charcoal lumps as a compost, pressed firm in potting, and made smooth and nice.

After potting and during the whole period of growth—from April till October—abundance of water should be given, and copious syringings in fine weather. Those who have grown this plant successfully cannot fail to have observed that by far the largest bulbs and largest flower-spikes are always produced at the outside of the plant where the bulbs have room to grow and swell, and that the smallest bulbs are in the centre of the plant where they are usually so crowded as to crush each other seriously, and prevent them attaining to their full size. Mostly all large specimens are in this state, and it is all for want of thinning out the bulbs—a work that should be fearlessly performed at potting time whenever needful. In thinning the bulbs care must be taken not to cut the creeping rhizomes on which the bulbs grow unless back breaks are wanted. Only the old and leafless bulbs should be cut out; these will usually be two or more years of age and will not flower again. It is always the last or terminal bulb that flowers. A pair of Grape-thinning scissors may be used to clip the bulbs clean off at the base, or in very crowded plants they may be cut away bit by bit, and cleared off to the stem by the knife. After thinning and potting, the leading bulbs should be re-arranged so as to cover the pan, pegging the "leads" into the vacant spaces,

and in the course of one season the plant will fill up again, and the bulbs will be far finer and more floriferous. J. S. W.

EDITOR'S TABLE.

THE LEOPARD'S-BANE (*Doronicum Pardalianches*).—This comes from Auchendrane, in Ayrshire, where it grows in great patches in the woods—just the place for it. We never could see much use for it in the garden, where the large space it took up was not repaid by the short period of bloom and coarse habit.

ARNERIA ECHIOIDES.—This interesting plant, with its clear yellow flowers and dark velvety spots, comes from Mr. Bartholomew, at Reading, and, we presume, from the open air. We should not expect it to be among the early plants. It is a singularly pretty plant and curious in the changing of its spots.

ARCTOSTAPHYLOS CALIFORNICA.—This is a very interesting little bush, reminding us of our own Bearberry, seeming, indeed, a large form of it, with rich evergreen leaves and little close racemes of pink flowers. It seems a neat bush for the margin of a border, for the rock garden, or a bank with trailing bushes, though not attractive in the ordinary sense.

GENTIANA VERNA.—The lovely flowers of this now adorn the spring, and come to us extremely well grown from Mr. Bartholomew. Long supposed to be a difficult plant, it is really not so, and flowers in our lowland gardens just as well as on the great mountains, where it is now protected by a blanket of snow from all change until the midsummer sun warms it into life and beauty.

THE CORSTORPHINE MAPLE.—The delicate bronze green of this tree is extremely pleasing at this time of the year. As a variety of one of our thoroughly proved and really hardy trees it is a valuable addition to our gardens, and worth a dozen of the variegated rubbish, both evergreen and deciduous, that is sent out in quantities to disfigure our gardens for some time before it perishes and is forgotten.

PRUNUS COCOMILLA.—A Sloe-like shrub, from Mr. Stevens's collection, said to be a native of Italy. We are grateful to the Sloe for the way in which it adorns hedgerow, rock, or copse throughout the whole of Europe in spring with its fearless bloom. We think it ought to have a bank for itself in every good garden where it might grow in peace, and every Plum that came near it in beauty we should plant, too.

A HANDSOME RHODODENDRON from Alvington, Torquay, is sent by Mr. Dawe. It is really a magnificent variety, with huge trusses of large bell-shaped blossoms, and a rich, bright crimson colour, spotted copiously on the upper part with black. Mr. Dawe informs us that it is a hybrid raised by Mr. John Luscombe, of Coombe Royal, Kingsbridge, between R. Thomsoni and R. Fortunei. It is a most distinct plant, and one calculated to impart much beauty to our sheltered shrubberies in early spring before the commoner sorts come into blossom.

NEW SEEDLING SPARAXIS.—A most beautiful series of varieties of *Sparaxis* is sent by Messrs. Smith & Son, Caledonia Nursery, Guernsey. They at once fix our attention, as they are so entirely unlike any other flower we

know with respect to colour. In form, too, they are beautiful, being of a good, Crocus-like shape, and nearly as big as the common Vernal Crocus. The colours range from deep maroon-crimson, in fact, almost black, through crimson, to a rich yellow. The darkest flowers are overlaid with a velvety lustre, which quite glistens in the light. One, labelled No. 33, is particularly remarkable in this respect. All appear to have been derived from the old *S. grandiflora*, bulbifera, and tricolor, and their varieties; but, let their origin be what it may, they are a valuable race of flowers, and should be much grown, though, perhaps, they would not succeed so well here as in the favoured climate of the Channel Islands. So early in the year they seemed a new race of flowers.

RUBUS SPECTABILIS is always a welcome sign of the spring. Usually in our country the hardy border flowers are full of bloom before the bushes make any show. This, therefore, with its crimson-red blossoms and early green buds is always welcome in a shrubbery or some corner where it may grow with a little colony undisturbed and not interfering with anything else. It is very easily grown in any shrubbery, copse or hedgerow, and adds a distinct charm to the spring at about the time the *Sloe* shows its pearly blossoms. From Mr. Stevens.

WALLFLOWERS.—Mr. Balding says he never has seen these so fine as during the present season, and sends double and single varieties well grown from his garden at Clapham Common. There they have a few advantages over the Central or North London flowers. Dean's Bedford Yellow is a sturdy and very handsome Wallflower. The old ruins of Conway, Pevensey, and many other castles are now gay with Wallflowers in many places; but they are tolerant of other walls than ruins, and we have lately seen healthy bushes on outhouses and walls that had been planted in the raw mortar as the wall was finished off.

A PINK WOOD SORREL.—Mr. Archer-Hind sends us what appears to be a very pretty pink variety of our common British *Oxalis*. The plant was found in Wales last year. It appears to him to differ a little in texture and general appearance from the common *Oxalis*, which is, perhaps, owing to cultivation; in any case it is a most delicate and precious little flower, which well deserves to be increased and grown as a garden plant. The colour is distinct and good. It is probably what Ray calls "*Biophytum trifolium acetosum flore-purpureo*." This flower comes to us from Devonshire, as fresh as if it had been gathered five minutes before, in a small tin box, with a few sprays of Moss with it. Had it been wrapped in cotton-wool we should have had but little of it left.

"FROM AN OLD-FASHIONED garden in the west country" come some of those old-fashioned Primroses and Auriculas which always brave our spring so well, and are so pretty in quiet little gardens. For the various forms of the common Auricula we have a great liking, and wish people would take to them generally. The partial shade that obtains in most small gardens, and the abundant moisture throughout most districts of our country, are admirably suited for the Auricula in its finer hardy forms. We often see beds of naked earth beneath hardy Azaleas and other recently-planted shrubs which might well be carpeted with various small plants, say, for example, the Hepatica and the Auricula. So long as the bed is thin of bushes the Auriculas would do admirably. By the way, a large standard Rhododendron at the College Gardens, Dublin, which used to have

many feet of bare earth underneath it is now prettily carpeted with various of the handsome and rarer forms of our native Primroses, which the rich earth and the partial shade suit admirably.

DENDROBIUM FALCONERI.—A most lovely variety of this Orchid comes from Mr. Peacock, Sudbury House, Hammersmith. The depth of colour at the tips of the sepals, as well as that of the lip, is intense, and this with the pure white and distinct golden ring makes a lovely flower. Though rather a difficult subject to grow the beauty of this *Dendrobe* amply repays any extra care that may be bestowed on it.

FLOWERS FROM AYR.—The freshness of the flowers from Scotland, at least those from Auchendrane, is pleasant to see. Double Primroses are unusually large and fine, particularly the sulphur-coloured doubles. The time has come when one can enjoy double Primroses everywhere again. In the wretched London gardens—we were going to say nursery gardens—where the poor little plants are pulled in pieces every year for increase, one never sees a good tuft of double Primroses. It is a greater pleasure, then, when one finds them in broad and healthy masses. In the gardens at Auchendrane, in Ayrshire, the use of the beautiful bronze olive of the leaves of *Heuchera* is well understood, for pretty little bunches of Daisies come to us surrounded by one or two of the leaves of this hardy plant, which is certainly well worth growing in every garden for its foliage.

NARCISSI from Aldborough Rectory are very welcome for their beauty and good size, the pleasure they bring us as coming from one of the old homes of our hardy flowers, and, lastly, as coming later than the same types about London or Dublin. Of the beauty of these plants when so well grown as they are in this case no one can say enough; no pencil pourtray it. We wish every owner of a garden could see these blossoms and realise how much one family of plants may do to adorn our open air gardens in springs fair or severe. The principal types now sent and gathered at the same time are (1) the Great Trumpet *Narcissus* (*maximus*) and the varieties or forms that are allied to it, such as *Emperor*; (2) the bicolor race and its varieties, the *Campanelle*, *N. incomparabilis*, the numerous forms of this and the hybrids near it; (3) the Pheasant's-eye group (*N. poeticus*), and various forms and hybrids; (4) the cernuus type, graceful and delicate in colour; (5) *Queen Ann's Daffodil* (*inodorus*), double and single; and (6) some of the bolder double kinds.

Saxifrages.—Col. Stuart Wortley is quite right in his description of *Saxifraga Stracheyi*. The latter is a most lovely pot plant kept in a cold frame during the winter, and then brought into the house just as the first blossom is about to expand. It lasts for weeks in bloom in a room. *S. cilata* is equally valuable, and has the merit of coming into flower about five weeks earlier than *S. Stracheyi*, which opens into first bloom just as the last flower of *S. cilata* is fading away. The latter is not hardy here and I am doubtful about *S. Stracheyi*, but I mean to turn out a plant in the autumn. *S. ligulata* was in splendid bloom in the open border here three weeks ago, but the north and east winds, hot suns, and night frosts of the last fortnight have completely withered it up.—H. HARPUR CREWE, Drayton-Beauchamp, Tring.

Plants near Aix-les-Bains.—I am leaving home for a couple of weeks' stay at Aix les Bains. Can any reader of THE GARDEN oblige by telling me anything of the plants, alpine, &c., to be got in the region about this time of year, and if there are any specialties to be looked for?—G. P.

NOTES AND READINGS.

SUCCESSFUL PROPAGATORS.—Poor Fancourt, who died the other day, was one of our best propagators and the "best pot Vine grower in England." When with Mr. Cutbush his pot Vines had a name, and after he went to Osborn's his pot Vines went with him. Strong—unusually so—early ripened, and fruitful, they were worth 5s. more than other people's, and they fetched it. I never saw pot plants equal to some of the last he grew, either in a nursery or private garden. He did not use larger pots than other people, but he fed the roots well, and the pots used to be filled with a mass of small fibres. Pot Vines for sale are better grown now than they used to be, and immense quantities of them are sold every year—sorry material, many of them with 18 in. of green wood at the top of the cane, weak eyes, and a watery constitution. The disappointments in pot Vine culture are great, but there is no reason why pot Vines should disappoint anyone. They only need to be grown in a good light, proper temperature, and be well ripened; these conditions present, it is the buyer's fault if they do not produce good fruit. Beware of trade plants that are stored in dry waterrooms from November till May and hardly ever watered.

STORED-UP SAP.—A fertile source of amateur physiological discussion is the storage of sap in plants, and some queer theories have been promulgated on this subject of late; some excellent and successful practice, too, has been attributed to it, and therefore one is bound to accept the sap hypothesis as being the correct one, or seek for another explanation of the practice not yet vouchsafed to the author of it himself. The "stored-up" sap in deciduous plants, like the Vine, for example, is so great, that the rods will go on growing and bearing fruit for the greater part of the season without any assistance from the roots; so we are told. The idea is a comforting one to those who have much to do with root pruning and root lifting. Frank Buckland offered a reward to anyone who would fetch him a snake that had just "swallowed its young" according to rustic tradition, but the reward has never been claimed; and we imagine a Vine living upon its "stored-up sap," even for a short while, will be equally difficult to find. We have seen the experiment tried in a number of different ways, and it always appeared as if the roots had a rather large interest in the business, and as if nothing short of a miracle would have saved the Vines after they were left to the "stored-up" supply. In truth, there is no such thing as "stored-up sap" in a Vine of a nature to support life for any length of time. Its tubes are as empty as a whistle, and the feats attributed to it are imaginary only, and without the shadow of foundation in actual practice or experiment. Stored-up food in a seed, or stored-up sap in a Potato or an Onion, for example, one can understand, for we can see it and feel it, and its purpose and effects are plain; but to talk of a Vine storing up and living upon its supplies in the same way is, to say the least of it, a mistake. The records of practice of many practical men are good if such men could only be persuaded that that was their strong point, and they would stick to it and keep away from problems relating to vegetable physiology—a matter beyond their depth.

MUSCAT ROMAIN GRAPE.—Mr. Barron in the *Florist* for December (p. 179) has described this Grape as being identical with the Muscat of Alexandria, which it certainly is not. I made its acquaintance when it was first sent out by the late

Mr. Rivers, who called it "White Romain" instead of Muscat Romain, because there was no "Muscat" in its character. Such is the story of its introduction. It has nothing in common with the Muscat of Alexandria, and is a poor Grape comparatively. It had but a short-lived popularity, if it could even be said to have had a fair trial at all. It is an early Grape, and the Muscat is a late one. In the White Romain the bunches and berries are moderate sized, and the latter are thin skinned, watery, and not very well flavoured. For all practical purposes, Mr. Barron is right, however, in classing Venn's Muscat with the Muscat of Hamburg, for to the ordinary observer there is no difference between them.

FIRE-BRICK FURNACES.—The fire-brick idea for furnaces is not an agreeable one to some makers it is well known. Hollow water bars and water jackets were not the invention of scientific engineers, but were constructed on "rule-of-thumb" principles, and appeared to those not conversant with the nature of heat and combustion to be excellent, because the heat, as it seemed to them, must be all caught if it was so surrounded by water bars and jackets that it could go nowhere else than into the water. Mr. Warhurst is evidently impressed with the same idea, but he may rest assured that he can boil his kettle soonest and most economically over a fire-brick furnace, and heat a horticultural boiler, too, provided they are fitted to each other. He seems to forget that, put as many water jackets round a boiler as you like, you only add unnecessarily to the quantity of water to be heated, and have still to put a fire-brick jacket or some non-conducting material round the jacket to keep it warm. The fire-brick must always be the top coat. A boiler water-way cannot be in a worse position than at the side of the fire or underneath it; its place is over it as directly as possible, like a spirit-lamp kettle, and by folding a non-conducting covering round the sides you keep the heat where it ought to be. If too much heat goes up the chimney it is because the fire is too big for the boiler. The best iron jacket we have seen is one mentioned by Mr. Fawkes in his book. The jacket is filled, not with water, but by air in constant circulation, and which, by an ingenious arrangement, helps to feed the fire, thus utilising the heat it has abstracted through the jacket.

FANCY O. LACED POLYANTHUSES.—The florist hardly acknowledges the "fancy" Polyanthus because of its erratic habit, but this variety, together with the Primroses, are likely to become the most popular with cultivators, the flowers being of many shades of colour, and very effective; the plants grow in any situation on the Grass or on the border, and they last long in flower; in fact, they embrace all the qualities of the laced kinds that are worth fighting for in a border flower and more. Seedlings afford many good varieties, and seed sowing is a safe and quick way of propagating them. The line is not very clearly marked between the Polyanthus and Primrose in this section, but that is neither here nor there. Frequent propagation by seed is advisable, as young plants produce the finest flowers.

The many "division" system of growing Orchids is an excellent one when it can be put in practice, but for every one who can do that there are probably hundreds who cannot; hence what cultivators want to learn is how to grow the greatest variety in the fewest divisions—say, in a cool and a warm house. I see that even Dendrobiums are recommended to have a house to themselves. Something like six divi-

sions seem to be necessary, according to authorities on Orchid culture, for successful treatment. Talk of the culture of Orchids being easy! Nurserymen, we daresay, find it useful to divide the genera in this way, but it has been proved often enough that the greater portion of our best warm house Orchids can be grown successfully in an ordinary plant stove. Some of the most noted specimens of Vandas, Aerides, and other select Orchids that are supposed to need special culture and position are grown in such structures, and plenty of noted general collections are managed in the same way. It is true that hardly any two Orchids are alike in their wants, but a man may soon familiarise himself with the habits and requirements of the different species under his charge by the aid of any handy guide on the subject, treat them accordingly, and grow all well and together in a small compass. In the culture of any popular class of plants or fruits the great point is to simplify their management and make it easy. Besides, a mixed collection of Orchids is always the most attractive and interesting, the variety in both flowers and foliage lending a contrast to the arrangement that it could not otherwise have.

BEES IN PEACH HOUSES.—Those who have seen bees in Peach houses, as recommended lately, will probably agree with me in thinking that the best thing that could happen in such a case would be the visit of an officer of the Society for the Prevention of Cruelty to Animals. It is a cruel and unnecessary practice, and it does not insure a set of Peaches, and is almost certain to ruin the bees. When I saw the bees in the house it seemed to me that they were all buzzing against the glass roof in the vain attempt to escape, and numbers were lying exhausted or dead on the ledges and floor, while many escaped by the ventilators to perish, probably, by cold outside. The man who cannot grow Peaches without the aid of bees should give up the attempt.

CUCUMBERS BY EXPRESS.—This is accomplished in "a small low house and a semi-suffocating atmosphere, filled with heat and reeking with steam, at a temperature of 95°, and the air at the point of saturation," according to an "editorial" in another paper. Such an atmosphere being one remove from choke damp, the visitor could just "stay long enough" to note these points, and the substance of the article must have been furnished outside by our "express" cultivator. I apprehend the vegetable physiology inculcated by such practice must be enlightened and correct, or the express method would not have received so much prominence. Probably the next thing that will be heard of in connection with these Cucumbers will be their appearance before the scientific committee, with a request to know what is amiss with them, and to be answered in the same satisfactory manner as heretofore. No good cultivator needs to be told that Cucumbers cannot be grown well or long under the conditions named. Another point of the "express" method is to top-dress the roots often with poor soil, in the shape of "rough pieces of fibry loam." This poor soil "tends to the production of roots." I never before heard of fibry loam of any sort that was poor; it is one of those rich composts that growers, either of plants or vegetables, can never get enough of. It is satisfactory to read that "the roots avail themselves of the pure loam at once;" as that is one would expect, notwithstanding its reputed poverty. "The whole mass was so filled and overrun with roots, that hardly any soil was visible." Just so. If our poor soil men go on with such examples of the truth of their theory, the task of refuting the latter will be much simplified.

PERRERINK

FLOWER GARDEN.

SOUTH AMERICAN ERYNGIUMS.

THE two plants represented by the accompanying illustrations belong to a small, but distinct



Eryngium pandanifolium.

group, chiefly natives of South America, and known as the Pandanoid section of Eryngiums, on account of their foliage being long and narrow, and beset with spiny margins. They differ very much from the ordinary Sea Hollies, such as *E. maritimum*, alpinum all agreeing with them in floral characters. There are about half a dozen species in cultivation in English gardens, all of which are handsome, and two or three particularly so, being stately in growth and more tropical in appearance than the ordinary run of hardy herbaceous plants. The names of the cultivated kinds are *E. pandanifolium*, *Lasseauxi*, *eburneum*, *paniculatum*, *Serra*, and *aquaticum*, the latter a native of North America, while the rest are natives of Brazil, Monte Video, and New Spain. Of these the most important are those represented by the engravings, which indeed illustrate all the characters of the group.

E. PANDANIFOLIUM is the largest, the leaves being from 4 ft. to 6 ft. in length, very glaucous, deeply channelled, sharply pointed, and beset with sharp spines on the margins. The flower-stems grow from 10 ft. to 15 ft. in height, the branches spreading widely. The flowers are inconspicuous, as indeed are those of all the other kinds. *E. eburneum*, from Monte Video, is smaller and distinct; its leaves are about 3 ft. long, the stems from 8 ft. to 10 ft. high, and the spines of the leaves, as well as of the stems, have an ivory-white appearance, hence its name. *E. Lasseauxi* is about the same size as *E. eburneum*, but the panicle is loose, and the leaves form a more compact tuft. The flowers, too, are distinct, being of a reddish purple.

These three plants, when well grown, are capable of producing a fine effect in the garden landscape if placed judiciously. Few plants, even from the Tropics, possess a more stately appearance than fully developed examples of *E. pandanifolium*, similar to what might have a few years ago been found at Kew, and, when seen

rising from a smooth lawn, the effect is strikingly fine. When planted together, as *Yuccas* sometimes are, in isolated groups, they show themselves off to advantage, but in all cases the situation must be a sheltered one, for they are not among the hardiest of plants, and are particularly affected by excessive moisture in winter.

W. G.

LILIIUM VIRGINALE, OR IMPERIALE, OR WITTEI.

A SALE of upwards of 1500 of the bulbs of this beautiful Lily took place some time ago at Messrs. Protheroe and Morris's sale rooms, and I am very much surprised that they did not attract more attention than they did. Their history was simply this: Major — received them from one of his sons in Japan, under the name of imperiale, where they had been collected on one of the islands, where the ordinary type of auratum was not found, and were sent home with a Japanese sketch of the flower, and, knowing how exact the native artists are, one was led to believe that it was the pure white variety of auratum so rarely found amongst the vast numbers of auratum yearly imported from Japan. On comparing the sketch with the carefully-executed drawing of *Lilium Wittei* in the "Notice sur quelques espèces et variétés de lis," published in 1874 by Krelage & Sons, of Haarlem, I am led to believe that it is one and the same plant, and if so, the manner in which it was passed over seems to be more remarkable, for they thus write of it. "It was received from Japan amongst many others by the house of Van Leeuwen, of Rotterdam, at the commencement of the year 1867. The Japanese correspondent stated it to be extremely rare, a fact which has been confirmed up to this time (1874), for neither before nor since has it been introduced into Europe. Messrs. Van Leeuwen received two bulbs which flowered during the season of 1867, and after some futile attempts to dispose of this Lily to one of the first English houses it was offered in May, 1868, to the authors of that paper, and after some negotiations they acquired the whole stock at a high price, consisting of four bulbs. The very slow increase of this Lily has not yet permitted them to put it into the market, and some time must elapse before they can do so."

Mr. Baker, of Kew, considered it to be a variety of auratum; Sir Joseph Hooker considered it to be a variety of speciosum, while Duchartre is astonished that Mr. Baker should consider *L. auratum* a species at all, he himself regarding it as a variety of speciosum; while to add yet another opinion, Krelage considers (a very safe notion) that both auratum and speciosum are natural hybrids of parents as yet unknown, and which, perhaps, will never be known; he, however, adds that until anything can be proved to the contrary we shall consider *Lilium Wittei* as a species; as already determined by Professor Salmigier, the entirely smooth surface of the interior parts of the perianth, when compared in living examples, established a striking contrast with the flowers of *L. auratum*.

They, however, state that they had exhibited flowers of their *Lilium Wittei* alongside of those of *Lilium virginale* of Bull, and they maintain that the difference is quite remarkable, the flowers being more beautiful and of better form, but we are so accustomed to see how people can trace differences where none really exist, that I shall not be at all surprised to find that these are identical, and if so, the indifference of Lily growers (and I can only judge of that by the price which it fetched) with regard to this large quantity of *L. virginale* is very remarkable. I may say that the Japanese sketch which I saw with Major — was exactly like the engraving of *L. Wittei*.

DELTA.

TRANSPLANTING GLADIOLI.

To those who may not even in a limited way have adopted my system of growing choice Gladioli the procedure may seem odd and even objectionable. I have stated more than once in THE GARDEN how I manage, in a limited collection, to grow this beautiful autumn flower so as to secure success rather than failure—increased and not degeneracy. Were I dealing with the ordinary hybrids of *gandavensis*, especially English-raised seedlings, I should have no occasion to change the system of culture; but having procured such expensive first-class certificated varieties as Sir Stafford Northcote, carmine, flaked red; Cherub, feathered buff; Lord Newport, lilac and white with a violet red stripe; Viscountess Glentworth, purple-flaked rose; Mr. Thornton, veined purple-crimson, &c., and also a few dozen French raised sorts for comparison, I considered some additional care desirable in starting them into growth on a cool shelf where the temperature did not fall below 45° during winter; they showed symptoms of growth towards the end of February, and I resolved to let them grow on with proper facilities. I procured some long boxes; filled them with a mixture of old hotbed manure, leaf-mould, and a fractional part of peat, with a handful of clean sharp river sand, above and below the corms. I am an advocate for early planting, and consequently full time for maturation of the foliage; always, however, remembering that we have a capricious climate to deal with. I planted them and took no further trouble with them until the rising stems, a week since, reminded me of their presence and of the next step desirable. My boxes were a foot deep, and every corm had about 6 in. to grow in and an excellent soil. Were I



Eryngium eburneum.

Iris reticulata is both plentiful and good this season. It has had no rain or snow to spoil the bloom, and beds are just now simply charm-

limited for space and a suburban gardener, I should grow my Gladioli on in boxes, and water them with some concentrated liquid manure, but having plenty of beds and some already prepared,

took a trowel, resembling a mason's—curved ones will not answer—and lifted every corn, without disturbing a fibre of the roots, and planted them with all the soil attached in the beds just referred to. Great care is necessary in transplanting, as I know of no bulbs with roots more tender. So far there has not been a single failure, though all are not equally advanced in growth, and one satisfactory result may be calculated on—by-and-by there will be no unexplained blanks or vain regrets. So far the Langport (English-raised) seedlings are in advance of the French.

Clonmel.

W. J. M.

Forget-me-nots of different colours.—

The white form of *Myosotis dissitiflora*, exhibited the other day at South Kensington, though remarkably pure and true, did not, as far as I could discover, evoke any strong sentiment in its favour. The fact is undoubted that we have so long associated blue with Forget-me-nots, their reversion to any other hue seems to violate our notions of the fitness of things. I do not know how far the public taste would favour a bright pink or red *Myosotis*; certainly such hues would be much more striking than white. It is rather odd that having regard to the invariable tendency of *M. dissitiflora* to produce flowers of a pale pink hue when first expanding, and of quite a deep pink if a plant should happen to get somewhat stunted, that we have never yet obtained a reddish form. Now that we have a pure white, perhaps the deeper colour will follow. The variety shown from Chiswick as *grandiflora* did not in its true form bear out that expressive appellation. I have plenty of clumps growing strong in sheltered places that have blooms quite as large as were those on the plant in question, and far brighter in colour. When plants are in a congenial soil and situation, they will often develop remarkably fine sprays of bloom, but the actual form of the kind remains the same. I managed last year to select a sport that gave flowers with broad, rounded petals, and though the seeds saved from the sport were few, I have the progeny just blooming. The original plant gave in some instances flowers carrying six and seven petals, though five is the normal number. These flowers were as perfect in form as a bloom of one of Mr. Cannell's new *Cinerarias*. I look for the full blooming of the seedlings with great interest, as a form that was much more robust and produced large rounded flowers would be an acquisition.—A. D.

LILY BULBS.

ABOUT the middle of last November I commenced what is a usual operation here every season in connection with Lily bulbs of almost all kinds. It consists in raking off, with a blunt stick and the fingers, all the earth from above the bulbs so as to lay them quite as bare as may be done without disturbing the bulb-roots below. Each bulb is then entirely covered with clean, coarse sand, and then the hole above is filled with a compost of loam and leaf-mould. We never cut off the old flower-stems until November, our reason for allowing them to remain so long leafless being, as I firmly believe, a good and important one. If cut off low down as soon as the leaves wither, they are apt to become hollow; then wet from the autumn rains trickles down into the old bulb centre, and in this way I am confident that many of the more tender Lily bulbs are lost. I am particular as regards saying the old bulb centre, for that is the part most likely to be affected by wet in the way described. In this climate I find cutting off dead flower-stems too soon is fatal to many other hardy herbaceous and bulbous plants apart from Lilies. Our first dive into the borders last year seemed a bad augury, for the bulb first turned up was a mass of brown rotteness infested with little white worms, about $\frac{1}{4}$ in. in length. An odd scale or two, and two little bulbs near the ground level growing from the base of the flower-stem just above the mass of roots constituted all the living parts of what was apparently a sound bulb a year ago.

L. auratum and *L. speciosum* invariably produce a mass of hungry roots from the base of the current year's flower-stem when it is 1 ft. or more in height, and just above the crown of the bulb, supposing the same to be sound and not thoroughly rotten, as it was in the case to which I have alluded. The next two ventures on the same border were more satisfactory, the results being the unearthing of two bulbs, the like of which it is rare to see. The one had three new crowns, *i.e.*, bulb centres, from which spikes of bloom may spring this year, and was a trifle more than 4 in. in diameter, *i.e.*, 13 in. in circumference. The other was an enormous bulb, quite sound, and very firmly anchored into the ground by its thick, deep-running roots, which were then fresh and active, a fact worth attention. This latter bulb was 5 in. in diameter, and had five new bulb centres, three being the number the year before. In addition this bulb had produced three bulbs the size of Walnuts from the base of the current year's flower-stem, and two out of these three stem bulbs, as I call them, produced a solitary flower at the apexes of slender stems from 12 in. to 15 in. in height. The main flower-stems of this bulb, of which there were three, were as thick as the middle finger at the base, tapering gradually as a bamboo wand, and were over 6 ft. high, each bearing from seven to fifteen flowers. I would here point out that neither height of stem nor mere numbers of flowers on a stalk is any real test of a finely-flowered *Lilium auratum*. I have had several broad-leaved varieties which might have been mistaken for *L. speciosum* in the early stages of their leafy growth. These forms rarely attain a yard in height even when planted out in a well-prepared bed of turfy loam and leaf-mould of the best; and yet they produced from three to five enormous broad-petalled flowers as big as soup plates, and nearly as flat and solid in shape and texture, one or two having the red medial band in the petal in the way of the variety named *cruentum*. These dwarf-growing and richly-coloured forms I prize far more highly than some of the stems of which here attain a height of 7 ft., and then bear at the top a confused jumble of from twenty to thirty small windmill-petalled flowers with barely texture enough in them to withstand a summer shower. Let me now return to my observations on the

Stem roots.—I have already stated that the bulb-roots were quite fresh, sound, and vigorous, the roots which formed a wig-like mass at the base of the old flower-stem were, on the contrary, quite dead. They die off, I find, even before the flower-stem from which they spring, having, as I suppose, served their purpose as auxiliary supporters of the growing flower-stem when laden with buds or with flowers and seeds. The little stem bulbs before mentioned are still attached near the base of the old flower-stem, nestling among the dead roots, but they are just now (November) pushing out young quill-like roots of their own, and indeed are quite independent of the stem which bore them, and by the assistance of which they were enabled to produce a flower each in July last year. Our practice is to screw or twist out the old flower-stalks and their mass of dead and wiry roots. We then detach the little bulbs from the stem and replant them for stock along with similarly small "spawn" bulbs. I use the term "spawn" bulbs for the small fry of all sizes, which are often produced when, as oftentimes occurs—too often in the case of *L. auratum*—a bulb fails to renew its main or flower-producing bulb centre, and breaks up into a cluster of detached scales, some of which develop buds that eventually become small bulbs, and so continue the species, just as do the bulbs produced above the bulb proper, *i.e.*, on the flower-stems. All Lilies have a tendency to produce both stem and "spawn" bulbs. Of the first section, *L. bulbiferum* and *L. tigrinum* are familiar examples. Of the "spawn" bulb group we may allude to *L. giganteum*, and especially also to one form of the European *Lilium davuricum*. Hence it is that Lilies, apart from seminal modes of increase, are so readily propagated and multiplied in the vegetative way. In buying imported *Lilium auratum*,

even although it be with great caution, one often obtains a proportion of partly rotten, crushed, or otherwise damaged bulbs, but the scales of these, if picked into pans or boxes of sandy earth and placed in a warm house, soon develop bulbs from which I have grown flowering bulbs the size of a Tangerine Orange in two years. The tendency to produce

Stem bulbs may also be taken advantage of for purposes of increase, by planting the bulbs sideways instead of erect; then bend down the growing flower-stems, and cover all but the extreme growing point with a light, rich compost of leaf-mould and sandy loam. If the mere increase of a Lily be all that is desired of it in this way, then by all means pinch out the flower buds as soon as they appear in sight. Treated in this way the axillary buds develop into bulbils, and in such sorts as *L. auratum*, *L. longiflorum*, and its varieties, the largest bulbs so produced one year not infrequently bloom the next season if liberally treated. Vegetative modes of reproduction of these kinds are often most convenient, but I am convinced that Lilies will never be thoroughly at home in gardens until we raise them for ourselves by the thousand from home-grown seeds.

Returning to my study of the bulb of *L. auratum*, I have somewhere seen it stated that the mass of stem roots above the bulb serves as a kind of natural thatch, sheltering the bulb below from frost and winter rains. In a dry climate this may possibly be so, but I have watched *L. auratum* here very closely, and found that we lost a large proportion, especially the first winter after importation, unless in the first place we allowed the gaunt and naked flower-stems to remain until they were quite dead, then twisting them clean out from among the scales in November, choosing a warm, dry day for the labour. We then enveloped the whole bulb in clean sand, or at least as much of it as can be covered without disturbing the roots, which, I am anxious to repeat, are now alive and growing below the base of the main bulb. In the bulb here sketched there are five new centres, all of which will, under favourable conditions, throw up a flower-spike this season (1882). In speaking of the sketch as one bulb, I do so because it is a good example of several bulb centres, being the outgrowth of one old bulb-base or stem, and the close analogy between this plural type of *Lilium auratum* bulb and that of the rhizomatous *N. Americanum Lilium superbum* is thus easily recognised. The only practical difference between this species, so far as bulb development goes, is that for some reason or other *L. superbum* (in its native habitat more especially) seems more eager to change its locality or its soil, may be every year, and to this end the bulb base (or true stem from which bulb scales and bulb roots alike spring) elongates in a terminal manner more rapidly, while in *L. auratum* the bulb base extends in a more equal or lateral way. The mere succession of bulb centres, no one of which ever blooms twice, is alike in all true Lilies.

Culture.—As to this, I am particularly anxious to recommend the above course of treatment to all who have moist soils or climates to deal with. I am also convinced that the stem roots of *Lilium* cannot be too carefully cherished while they are growing. I find that they ramify in all directions, and are most eager to crop up near the surface-dressing of leaf mould and the carpet-like covering of mossy Saxifrage with which they should, I think, be covered. Then in March, supposing that the bulbs are planted in the open border (and not, as is far preferable, among dwarf *Rhododendrons* and other shrubs), sow shallow-rooting and rather tall annuals around them, to afford shelter to the collar of the stem where it springs up from the soil. The only artificial stimulant I ever use for Lilies is soot (dry, as a dressing, just as the young shoots appear in spring) and leaf-mould in a well decomposed state. This last, I am sure, answers better for them here than peat. We also give soot-water rather freely during dry weather, and keep aphid at bay by syringing with it when nearly clear, *i.e.*, after

it has settled some time. Soot seems most palatable to all Lilies, but especially when brewed carefully and clearly, by placing half-a-bushel into a gunny bag or one of coarse canvas, adding a large stone or a couple of bricks ere the mouth is tied up; then sink the bag and its contents together in a tub or tank of rain-water, and allow it to remain for a few days before using the liquid thus obtained.

Lilies in pots we treat practically the same as those out in the borders, taking care to pot them in October or early in November, after which the plants are plunged in ashes in a cold frame. In spring the tops of the pots are sprinkled with pure fresh soot in order to keep away predatory slugs and snails, otherwise they may make sad havoc of the tender young Asparagus-like

TREES AND SHRUBS.

ENGLISH AND SCOTCH FORESTS.*

FROM a forest point of view, Scotland may be divided into two distinct regions, by an imaginary line drawn from Perth, on the Firth of Tay, to Greenock, on the estuary of the Clyde. To the south of this line we find the Lowlands. The economic situation of this wealthy district is as prosperous as possible, and the thoroughly developed system of high farming which is there employed leaves but little room for forest cultivation. The Lowlands are bounded on the south by the Cheviot Hills, which afford excellent sheep w.lks. To the north of this line lie the Highlands, intersected in all directions by the

the 13,000,000 acres which this region comprises, only 1,600,000 (or less than one-eighth) are classed as arable, forest, and pasture lands. If out of the remaining 11,000,000 acres we allow half for the lakes, bare ridges, and sterile mountain tops, there will still remain 5,000,000 acres capable of furnishing valuable timber forests. In the Highlands, to which we principally directed our attention, the districts around Perth, Elgin, and Inverness are those in which the most extensive forests are to be found. These three counties together contain about 247,700 acres of forest, and being well served by the Highland railway system, these are easier to visit than any of the other Scotch forests. Starting from Perth, we made our way across the Highlands, visiting *en route* the towns of Dunkeld, Blair Athole, Aviemore, Grantown, Forres, Inverness, and Beaulieu. We were thus enabled not only to make an inspection of some of the finest forests in Scotland, but at the same time to obtain a fair idea of the general aspect of the country. The punctuality and precision, so thoroughly characteristic of Englishmen, with which all the details of our journey were arranged by Colonel Pearson, added to the hearty reception we met with at every turn, enabled us, in the short time at our disposal, to thoroughly inspect more than 100,000 acres of every description of forest, under ever varying physical and geological conditions. Everywhere, both at a few feet above the sea level and on the sides of mountains at a height of 2500 ft., in the sands of Forres and in the schists, red sandstones, granites, and gneiss of the interior, we were struck by the wonderful aptitude of the soil to forest vegetation, favoured as it is by a regular climate and the constant humidity of the atmosphere. In the low-lying districts, at an altitude of from 250 ft. to 300 ft., we found growing, both singly along the roadside and collectively in the forests, magnificent specimens of Oak, Maple, Elm, Ash, Beech, and Lime, which, by the vigour of their growth and the rich colouring of their foliage, bore testimony to the favourable conditions of soil and climate under which they grew. We were struck with admiration in beholding the colossal trees of every description forming the avenues at Scone, Dunkeld, Blair Athole, and Darnaway. It was near the first of these places that the venerable father of Scotch forestry, Mr. McCorkindale, showed us, with legitimate pride, a small Oak forest of about 400 acres, which, 60 years before, he had himself assisted to plant. In this forest, the trees were standing about 24 ft. to 30 ft. apart, and their diameters measured from 12 in. to 18 in., whilst their magnificent tops formed a perfect canopy of leaves above the bright Rhododendrons, in which colonies of young pheasants found a home. In the spring-time this ought indeed to be a fairy-like spot. But, independently of this undergrowth, which is, after all, only suitable for the wealthy few, we cannot help thinking that a more careful study of this superb forest would go far towards clearing up some of the doubts which have always surrounded the difficult question of the cultivation of forests composed solely of Oak.

Scotch Fir and Larch.—The mountain vegetation commences at about 400 ft. above the level of the sea; beyond this we find ourselves in the domains of the Scotch Fir, the Larch, and the Birch. In selecting the Scotch Fir as the tree to be cultivated before all others in these regions, the promoters of forest plantation during the latter half of the past century showed no mean proof of their thorough appreciation of the natural requirements of the soil and climate of the Highlands, for not only have they ensured the success of their operations, but they have traced out the best line of action for their successors. Equally fortunate were they in their endeavour to introduce the Larch into Scotland; transported from the ice-bound summits of the Alps to a country where the climate is tempered by the softening influence of the Gulf Stream, this tree does not appear to have suffered to any material extent by so sudden a change of latitude. When, in 1737, the Duke of Athole brought home, amongst his baggage, as a



Lily bulb, showing new bulb centres.

flower-stems on their first appearance through the soil. Bulbs planted in March of last year bloomed splendidly, having had the protection of a cold frame during their early stage of growth, the lights being removed early in June. They were planted out in a specially prepared bed, and in November the lights were replaced for the winter, *i.e.*, after the bulbs had been examined and treated as just recommended. In thus affording frame protection to pot Lilies, as also to those planted out under lights, I am in favour also of a covering of light dry bracken during severe weather as preferable to turf-mould, ashes, or dry manure, each of which has its own special advantages on the open border.

F. W. B.

far-stretching chain of the Grampians, whose rugged nature gives to the country an aspect not unlike that of the western coast of the Scandinavian peninsula. One would imagine that at some earlier geological period immense polar glaciers, flowing over the solidified North Sea, traversed the whole of the north of Scotland, polishing on their way the mountain sides, excavating the lake beds, and breaking off abruptly the cliffs surrounding the coast.

The culture of cereals is here confined to a few favoured localities, situated near the mouths of the rivers or on the low-lying ground bordering the sea, where the glacial deposits constitute an excellent soil. The rest of the country is wholly occupied by water and heather, and thus out of

Cleome sesquilogialis.—Can any one tell me when to sow the seeds of this? What culture does it require?—R. W.

* Extracts from a report on a visit to the English and Scotch Forests by the Professors and Students from Nancy Forest School, by M. Boppe Inspector of French Forests.

kind of remembrance of his travels in the Tyrol, the seeds which were sown in his park, and from which sprung the first Larches in Scotland, he rendered a most valuable service to his country. From a fore point of view, the results obtained by the cultivation of these two species (Scotch Fir and Larch) are truly marvellous. Anyone who has seen the beautiful Larch forests planted in 1815 on the banks of Loch Ortie, and the vast stretches of Scotch Fir covering the flanks of the Brannwood Mountain, cannot fail to admit that the question of the replanting of the Scotch Highlands is practically answered. The absence of the Beech from all the forests of any standing is easily accounted for by the fact that it is only quite recently that the timber of this tree has become of any value for industrial purposes. For many cultural reasons, however, the Beech is a tree of the highest importance, and we should strongly recommend its introduction into all future plantations, and it is, moreover, as much indigenous as the Scotch Fir and Birch. In many cases even it might with great advantage be substituted for this latter, or, better still, mixed with it. Considering, too, the wonderful success that has attended the introduction of the Larch, we think that a similar attempt might be made to acclimatise the *Pinus montana* in the peat mosses. These immense sponges, so to speak, which cover sometimes entire districts, discharge their dark-coloured waters into all the streams, and give to the lakes and rivers of Scotland that sombre tint which is so peculiar to them.

Forest regeneration.—As foresters of the Continental school, accustomed to live among forests regularly managed, and having for their sole object the production of timber, we had no little difficulty in understanding the widely different motives which actuate forest cultivation in this country. Everywhere we found the forests fenced in on all sides with walls and hedges; and, as a matter of fact, the forester or agent generally carries the keys of the gates in his pocket. We learnt that these costly enclosures were erected, not for the purpose of keeping out the cattle and deer, as in the *Tura*, but for the purpose of keeping them in; it appeared to us like shutting up the wolf in the sheepfold. We were also struck by the monotonous regularity in the height and age of the trees, unmistakable sign of their artificial origin and want of methodical management. The forest, here left to its own devices, continues growing just as the hand of man has planted it; the undergrowth is constantly grazed down by the sheep and cattle, and Nature, in spite of the immense resources at her disposal, is quite powerless to modify the work of the planter, or repair the errors committed by woodcutters. When, under such circumstances, the time arrives for the trees to be cut down, or should they be uprooted by a hurricane, the forest disappears in its entirety, owing to the total want of young growth which is necessary as a link between the old forest and the new one which ought to be created. Such, at least, appears to us to be the case in all the forests that we visited in the valley of the Tay and its tributaries, and further north, near the foot of Cairngorm. Not far from a mansion to which are attached some of the pleasantest recollections of our tour we saw the remains of a noble forest, which some twenty years ago had been cut down and converted into railway sleepers. The sight of the huge stumps, blackened by time, with their gnarled roots twisting themselves over the ground, gave us the idea of some vast charnel house. This scene of utter ruin was indeed a sad spectacle, though the present proprietor is doing his best to again cover his estate with timber; with a better system he might have been spared both time and expense. It is easy in Scotland to perpetuate a forest by natural means, and of this a practical proof was given us in two forests which we visited; the one near Grantown, in Strathspey, the other at Beaulieu. In these the results obtained under the skilful and intelligent direction of the gentlemen who manage these forests for their employers form a striking example of what may be done in

the way of reproducing forests by natural means. In fact, nothing had been neglected which even the most critical forester could desire; the gradation of age was here complete, and the reservation of specially vigorous trees of known pedigree duly carried out. The *modus operandi* here pursued consists simply in the exclusion of the sheep and deer, in the judicious thinning out of the growing crop, and in the removal of the mature seed-bearing trees, by successive fellings, as the young forest grows up and acquires more vigour. Nevertheless, we would not have it be supposed that the sheep need be absolutely debarred from grazing in the forest; it is only in those portions where the undergrowth is very young that the damage caused is irreparable. We feel convinced that, if every year, certain portions of the forest best capable of supporting it were marked out for grazing, the quality of the pasturage would be greatly improved, and the heather would quickly disappear under the cover. It is an established fact, beyond all contradiction, that on any soil, whatever its geological origin, a complete covering of forest vegetation will kill the heather as soon as the trees reach the age between thirty and forty years. Suppose, then, that 120 years be the term fixed for the existence of the trees in any portion of the forest, and that the trees of 100 years of age and over are reserved, there would still be one half of the forest always open to the sheep, and the other closed. But, at the same time, it is certain that this open half, owing to its superior quality, will furnish pasturage for at least twice as many head of cattle or sheep as the same quantity of moorland. Although, under ordinary conditions, the regeneration of a forest will be sufficiently assured by the exercise of a discreet control over the grazing, something more than this must be done if it is desired to turn the land to the best possible account. It is therefore a matter of regret that nothing has yet been done to place forest management in Scotland on a sound economic basis. The productive powers of the soil and of the climate have been made use of by able and intelligent planters, who have thereby enabled Nature herself to accumulate a considerable store of timber; but all this wealth is exposed to the carelessness of some and to the ignorance of others, until the hand of a forester manages it properly, and places it on the only sound economic principle of all agricultural and forest property—a constant annual revenue and a constant improvement in production. It would certainly not be fair to hold the Scotch foresters responsible for the present regrettable state of affairs, for, though they have for the most part admitted the inefficiency of the present system, they are powerless to effect any improvement so long as the landowners and general public have not learnt to appreciate the manifold advantages to be derived from a regular and methodical management. They have to struggle against many adverse interests and hindrances, such as grazing and shooting interests, questions of routine, pecuniary exigencies, and the fancies of sportsmen from all parts of the world.*

The future of Scotch forests.—In wishing Scotland, then, a hearty farewell, we venture to predict for her forests a great and prosperous future. It does not need that one should be a very great prophet to predict this for a country where the Oak and Beech, the Scotch Fir and Larch, flourish with equal vigour, and where the Abies Douglasii, Abies nobilis, and Abies Menziesii, the Sequoia, and the Cedar form mighty trees, in company with the Araucaria and various exotic shrubs, which only languish miserably under the climate of Paris. Before leaving this country, however, we would fain add a word of advice, for the moment appears to us a propitious one for deciding on the future welfare of the forests, which, owing to the rapidly increasing value of timber, runs great risk of being compromised. Ordinary Fir timber now fetches 8d. per cubic foot. Larch is worth nearly double that amount. We ourselves

*A deer run, over unproductive land, has just been let to an American for nine years at the fabulous rent of £10,000 per annum.

visited a forest of Scotch Fir which, at this rate, would be worth £120 an acre, and another of Larch worth considerably more; whilst a third forest of 1600 acres, composed of Scotch Fir, was purchased a few years ago for £52,000, or only about £30 an acre. The plantations on the Culbin Sands, near Forres, would readily find buyers at £50 an acre at the age of forty-five to fifty years. The very day we were at Grantown, the agent for the Strathspey forests concluded a bargain to furnish Birchwood to the amount of £2000. All these figures are fraught with extreme significance for the future, and the large forest owners of Scotland will do well to pause before allowing their forests to be "overwooded." We would recall to their recollection the old fable of the goose that laid the golden eggs. No doubt, people are often frightened by the long names and big words they find in treatises on scientific forest management, but they may very well neglect the text if only they will adopt some of the principles which they contain. Let the owner of a forest, after having made a careful and detailed inspection of it, divide it off into blocks or compartments so arranged that they should be uniform as regards conditions of soil and of planting, and then proceed to count and measure all the trees of 3 ft. girth and upwards, classing them in categories according to their diameter. He should then open a debit and credit account for each compartment, placing on the debit side the actual volume of the standing crop, and on the credit side the volume of timber removed at each successive felling. This register should always be consulted before undertaking any forest operation, and when the annual fellings fall due, it will show which compartments can best support the withdrawal of timber, and which require to be left untouched. Moreover, the balance-sheet will render an exact account, favourable or otherwise, of the condition of the forest. Ten years of such systematic treatment would form in itself the basis of a regular forest working plan, and the doctor's prescription would no longer frighten the patient with its long words.

English Forests.

Windsor Forest.—Our programme, however, was not yet complete, and fresh excursions awaited us in England. It took us only four days to reach Windsor Forest from Inverness, passing by the Caledonian Canal, and halting at Oban (from whence we visited Staffa and Iona) and Edinburgh, whence we took the train to London. Even with a four-in-hand and the best of drivers, it would be impossible to see Windsor Forest in such a short time as we had at our disposal. The history of that noble park has been published in a splendid volume by the late surveyor, but the history of Windsor is, so to say, a repetition of the history of England herself; if we follow all the phases in the development of this park, where, since the time of William the Conqueror, each sovereign in turn has given his name to some remarkable tree, Windsor Park may with justice be called the Westminster Abbey of British monumental trees; its history is one which belongs as much to archaeology as it does to sylviculture, while in it the beautiful deer are almost as numerous as the trees themselves. Nevertheless, the practical forester may rest assured that, although the first place is here given to art and beauty, he will still be able to find much to interest and instruct him. Windsor Park is indeed one of the most magnificent fields for the study of forest botany that even the wildest imagination could conjure up. Here may be seen, growing singly or collectively in clumps, specimens of all the finest trees, native or exotic, which exist in Great Britain, and, since care has been taken to keep an exact record of the age and origin of each plantation, the forester would be enabled to follow out in detail studies of the highest interest and importance regarding the growth of the principal forest species. It would be more difficult to do the same with regard to their longevity; for one is led to think, in looking at some of them, that, in this hallowed ground, trees never die of old age. One sees in these relics of the past that religio

respect for things so characteristic of Englishmen, when even the most violent revolution could pass over the country and yet leave these monuments and these trees intact. The surveyor of Windsor Park, who is by turn a forest officer, an organiser of shooting parties, a director of the royal workshops, and conservator of a museum of antiquities, can, in consequence, have but little time to devote himself to sylviculture, unless it be to prepare the iron armour, intended to preserve the veterans of the forest in their struggle against the elements, or to prop up with crutches some invalid deprived of a limb by a recent gale.

New Forest.—Having come all the way from Scotland to Windsor, we were not to be alarmed by the journey from there to the New Forest, for a few hours sufficed to carry us to Southampton. As old as Windsor Park itself, the New Forest has not had the good fortune to be the dependence of a royal residence. The barrenness and poverty of the soil has sufficed to preserve it from being plundered even at an epoch when land was valued more for its extent than its fertility. But, on the other hand, this very fact attracted a poor and necessitous population to settle in and around the forest, who, during long ages, have been accustomed to derive a precarious existence from it, and by careless abuses have threatened it with certain ruin. For many centuries the New Forest has thus been a prey to commoners, who use up its resources without either method or control. One may see there the steady onward progress which is made by the Heather; and, although it is not perhaps so quick under the feet of the almost wild ponies and cattle as under those of the sheep, yet it is none the less sure. The sole remedy for this state of things was to restrict the commoners to certain defined localities, and that could only be done by sacrificing a portion of the forest to save the rest. This is, in fact, what was done about twenty years ago; but the sacrifice has indeed been a heavy one, for the reservation of some 14,000 acres has cost the abandonment of 49,000 more. The part which has been freed, however, is sufficiently extensive to constitute some day a respectable forest, whilst the part given up is hurrying to its destruction in a manner deplorable to behold, and before very long there will be nothing left but a worthless barren heath. It is not, however, in twenty years that a forest so badly used as the New Forest can be restored. The first thing to be done was to put the soil in good order, and then to plant some of the vast stretches of heather with Firs. Of late years the forest officers have sought, by excluding the cattle, to bring about the natural reproduction of some portions hitherto abandoned to pasturage. But with whatever care these operations may be carried out, at least fifty years must elapse before they can resort to systematic fellings, with a view to furnishing a regular revenue. At present, contiguous portions of the forest often present the most curious contrasts. On one hand we see young Firs and Oaks growing side by side, in another place a forest of pure Oak, languishing among Chestnuts, and in a third plantations of Fir and Beech, indicating by the vigour of their vegetation and their healthy appearance that it is on them that the future of the forest ought to depend. Further on there is a valley filled with aged Beeches, whose weird forms gave an almost supernatural aspect to the spot; we almost expected to see the ghost of William Rufus pursuing that of Walter Tyrrill through the haunted forest. Without contesting the marvellous beauty of some parts of the New Forest, so dear to artists and lovers of Nature, we are bound to say that before long it will not be here that a professor of sylviculture, desirous of teaching his science, will choose to pitch his tent. On our return to Lyndhurst, after the excursion in the New Forest, there remained but three days at our disposal before our duties necessitated our return to France. These were employed in visiting the

Forest of Dean.—The present Forest of Dean occupies the site of the old forest of the same name, which formerly covered the whole of the plateau

between the estuary of the Severn and the valley of the Wye. The old forest has disappeared within the few last centuries, owing perhaps to the demand for charcoal and mine props for the local industries; if, however, we were not afraid of being accused of being prejudiced, we might say that unrestricted pasturage may have had something to do with the disappearance. It is on these ruins that the new forest of Dean has been created; in less than a century more than 16,000 acres of the original 22,000 have been replanted. The older plantations are generally of pure Oak; the Beeches, Chestnuts, and Birches form but a small percentage of the trees. Scotch Fir, Spruce Fir, and Larch are generally only found in the plantations made during the last thirty years or in bad, peaty portions. The state of vegetation is generally good, varying, however, with the quality of the soil, but indicating in every point the artificial nature of the forest. We may take this opportunity of remarking that a plantation of "broad-leaved" trees (Oak, Beech, &c.) takes a much longer time to establish itself than one of "needle-leaved" trees (Conifers—Scotch Fir, Larch, &c.). In Scotland we saw the most magnificent plantations of Larch and Fir, whilst in the Forest of Dean the plantations of Oak were always more or less dwarfed in appearance. The cause of this is that Oaks furnish the soil with much less vegetable manure than the Coniferous trees; and again, in an Oak plantation there is a marked absence of undershrubs and spontaneous ground vegetation, which, by their organic remains, tend to increase and improve the surface soil. It is rare also that a plantation of Oaks, on a soil which has been long uncultivated by forest vegetation, and is but moderate in quality, succeeds well during the first generation; it is only at the second generation that the trees acquire their normal development. At present, while the trees are yet in their youth, the only cultural operations that can be undertaken are the periodical thinnings, and these are here conducted with great skill. There is no doubt, however, a great future in store for the Forest of Dean, thanks to the workman-like manner in which it is managed, and to the laws regulating the pasturage, which date back to the time of Charles I. We were not able to suppress a certain vague feeling of sadness in wandering through these endless plantations, rendered so dreary and monotonous by the total absence of that undergrowth which seems to inspire the woods with freshness and life; and it was with a sense of great relief that we emerged from them, and entered into a well-managed

Forest composed of standard Oaks surmounting coppice wood. This forest, comprising about 8400 acres, was formerly the property of Lord Gage, and was purchased by the Crown with a view to presenting it to the Duke of Wellington. It is composed of pure Oak, and for more than a hundred years the coppice has been cut every eighteen years. We might add that the reserved trees form the staple element in this forest, for the coppice forms but a small proportion of the standing crop. These reserves, varying in age from twenty to a hundred years, are in an excellent state of vegetation, and number about eighty trees to the acre. The largest trees are about 4 ft. to 5 ft. in girth, and from 25 ft. to 35 ft. in height of stem. It would be a great pity to cut them until they have attained at least double their present age. This forest would form an excellent school for the study of the treatment of standard Oaks. In such a forest, where the soil is so exceptionally fertile, it might be possible to find a solution to the oft-discussed problem of obtaining the maximum production in quality and quantity from a forest of Oak. This was, at least, the impression we carried away with us as we turned our faces homewards.

Forest schools.—We had barely sufficient time on our arrival in London to pay our respects to the authorities at the India Office, when we were asked by Sir Louis Mallet to place on record the observations which we have now the honour to submit, and to state whether, in our opinion, the immediate foundation of a forest school in Great

Britain is possible. In order to reply to this question, it was necessary for us, even at the risk of our narrative being found tedious, to enter into a somewhat detailed account of the Scotch and English forests. Were it only for the purpose of replanting the five or six millions of moor and waste land which cover one-third of the Highlands, we should consider there was a sufficient reason for the formation of such a school. The question, however, must be studied on broader grounds. Considering the present depressed state of agriculture all over Europe, it becomes more and more necessary to endeavour to draw the greatest possible advantage from the land, and, by properly adapting a different vegetation to different soils, to seek to obtain, through the medium of the enormous capital which the present generation can command, the maximum production from a minimum area. It is thus that the forests are called upon to play an important part in the immediate future, and the farmer will henceforth find a powerful auxiliary in the forester. After making every allowance for the great fertility of the soil in Great Britain, we feel certain that in many districts more than one of the forests which were cleared some time back would now be jealously preserved by the same proprietors who formerly cut them down to satisfy their pressing wants. It must also be borne in mind that the British empire is not confined to Great Britain and Ireland, and that, by reason of her immense possessions, England is, perhaps of all nations in the world, the one most richly endowed with valuable timber forests. It is by hundreds of millions of acres that we may reckon the forests of Canada, India, and Australia, New Zealand and Cape Colony, not to speak of those in the West Indies and Borneo. All these natural resources of wealth are worked by British enterprise and British capital, and, consequently on the present wonderful development of commerce throughout the globe, it is a matter of importance to every civilised nation that this vast accumulation of forest riches should not fall into the hands of ignorant persons, or be squandered away regardless of the future. For these reasons the establishment of a forest school in England becomes a matter of primary importance. The science of forestry is, however, a science of observation, based upon facts which must be studied both from a practical and theoretical point of view. It is therefore absolutely necessary that a forest school should have attached to it a forest which has for some time past been under scientific management, serving, so to speak, as a natural laboratory for experiments, and without which the best theoretical teaching in the world would be of no avail. This is especially the case in England where the young men, by reason of their national character and their mode of education, are accustomed to pay more attention to facts than to theories; here the teacher of a technical profession, resting solely on theories, would command very few disciples. It is, therefore, a matter of regret that, among all the forests visited by us in our travels, there is not a single one suitable for the teaching of sylviculture on that broad basis so essential when the pupils are called upon to apply it in all quarters of the globe. In England, as in Scotland, all the woodlands may be arranged in two categories—the one containing plantations too young, recently created by the hand of man—the other containing plantations too old, or too much overworked, to be useful for the purpose; nowhere did we see a high timber forest formed of really mature trees. Moreover, a plantation must always be incomplete as a field of study, and especially for persons who will generally have to deal with natural forests. Nature, ever prodigal of her bounties, if left to herself scatters them broadcast without any regard for the particular wants and requirements of man. It is then the work of the forester to control this generous prodigality, and, by careful selection, to concentrate her fertilising powers on such trees as are best adapted to meet the general demand. In the case of a plantation there is no need for this interference; here, natural selection, the struggle

for supremacy amongst the different species, and even art herself, can play but a very insignificant part in the various phases of its existence. In a forest, then, of this nature, it would only be possible to apply a very limited number of the principles of sylviculture. We would suggest the foundation of professorships of "Forest Economy" at two of the great public seats of technical instruction. One of these might be instituted at Cooper's Hill for England, the other at Edinburgh for Scotland.—*Journal of Forestry.*

ROSE GARDEN.

LEAN BUDS AND HOW TO FILL THEM.

ROSES do not seem to have relished the change of weather. The frost has not been much, but the biting winds, continued thus far into April, have not suited Roses allured into full growth by the preceding winterless weather. Hardly had they been pruned when the cold weather was down upon them. The result, so far, has been a welcome check accompanied with a threatened weakly breaking of the semi-dormant buds on the base of the beheaded shoots. This circumstance, singularly enough, is almost as pronounced a feature on Roses close pruned at the end of February as on those left unpruned till the middle of March. These thin breaks are somewhat disappointing to those whose post bags are just now crammed with the prize schedules with the most tempting prizes for the best 72's, 36's, 28's, 24's, 12's, and 6's, and anxious questions are being asked, "Can these lean buds develop into the size and substance of winning flowers between this time and the middle of June or July?" It is difficult to answer such questions with certainty. It is easier to discover the cause than to suggest a cure for the narrowness and leanness of the base buds of Roses at the present time. The wetness of the autumn of 1881, as well as the mildness of the past winter, or rather the fact of there being no winter, were no doubt the chief causes. The rains kept the Roses growing when they ought to have been ripening and left the buds and especially those at the base of the shoots thin and poor. The sap that ought to have filled these with embryo Roses for 1882 rushed right past them into the formation of green and incipient wood only fit for food for frost. To render matters worse the frost never came, and in many cases the Roses have kept growing all winter, forgetting even to shed their leaves properly or at all. This winter growth seemed still further to impoverish the buds at the base of the shoots. Had growth been forcibly arrested in December, the sap from then till now would have helped to nourish the buds on the unfrozen part of the shoot throughout the winter. In the usual order of things, the base of the shoots, being harder than the upper portions, would have come safely through frost of ordinary severity, and the buds there placed would have been plumped up. But it has so happened that while the base buds were left in the autumn in a most unfinished state all that has happened since has tended still further to impoverish rather than fill them. True, the vigorous shoots so recently cut away at the general pruning may not have been made, as some assume, at the expense of the base buds, though no doubt some of the sap that was expended on the former might have found its way to the latter had not the upper shoots drawn it to themselves by their more vigorous growth, and it matters little either to a hungry man or Rose whether food has been taken out of his mouth or diverted from it. Either way the result to man or bud would be leanness or semi-starvation.

As to remedies for lean Rose buds, genial weather would prove the most welcome and potent, for what with the sudden beheading of the growing shoots by pruning, the arrestment of root growth, and stoppage of the sap through the sudden fall of the temperature, our Roses seem now in a state of semi-syncope. Anything that will again set and keep their juices in motion,

such as warm earth and a genial atmosphere, will restore their health, and give them the means of filling and strengthening at this season their base buds. Thinning the latter also where too numerous would assist in strengthening them. In fact, those who aim at firsts in exhibition tents should only leave one strong bud on a shoot. All else should be removed as soon as growth is sufficiently advanced to reveal the stronger and more promising shoots. These are by no means always apparent at first. Occasionally, too, the stronger shoots are malformed, and may not prove flowering ones at all. For these reasons disbudding must not be set about too soon; neither must it be deferred too late, else the diversion of fluids from the buds removed to those retained may not take place. It need hardly be added that all insects must be instantly destroyed if this struggle to strengthen weak Rose buds is to end successfully in the production of perfect show flowers. It is as cruel as it is hopeless to expect Roses to do their best while they are heavily handicapped with hosts of aphides and hungry broods of maggots black, green, or grey. And they must have a fair field and all the favour we can give them to boot if they are to win honourable distinction in the prize tent or yield a full, rich harvest of fragrance and beauty to their cultivators. Among the favours should be especially noted a clean, rich root run and freedom from their greatest and worst rivals—suckers above and below the surface. Every weed permitted to grow on a Rose bed or border, even at this early season, is lowering the quality of the coming Rose harvest. It shuts out the heat of the sun from the Rose roots as well as steals their food. Suckers, again, are veritable horse-leeches to Roses; they reverse the current of the sap and drain the Rose shoots dry, that they may fill, and fatten, and extend themselves. Their cry is ever give, give, and they are never satisfied till the Rose succumbs to their grasping ambition and butcher-like appetite for the blood or life of Roses. Those above ground are easily found, and no quarter, no, not for an hour, should be given to a sucker. In the destruction of these many underground suckers will be brought to light, and these should also be instantly removed. By such favours and attention as here advised, it is hoped that not a few of our lean Rose buds will develop into well formed flowers of good substance and perfect form before the Rose shows overtake us. D. T. FISH.

Autumnal-flowering Roses.—Last autumn the old China Roses proved most abundant flowerers, displaying their charms in great profusion up to quite late in the season. Noisettes Aimée Vibert, Lamarque, and Céline Forestier, though not usually classed as autumn bloomers, were conspicuously fine last autumn worked on the seedling Brier. Madame Berard on the same stock proved a very vigorous grower, flowering as freely and finely in September and October as Gloire de Dijon. The following varieties are good autumn bloomers, viz., Beauty of Waltham, Baron Gonella, especially fine and free; Boule de Neige, Charles Lefebvre, La France, Mabel Morrison, Madame George Schwartz, Anna Alexiéf, and Gloire de Dijon. It would not be difficult to extend this list, but the foregoing were excellent last autumn. They were all worked on the cultivated Brier, which appears to be, taking it altogether, the very best stock for dwarf Roses. —R. D.

Roses in Warwickshire.—As a proof of the extraordinary mildness of the season, you may like to hear that I have this afternoon gathered a magnificent blossom in perfect condition off our Maréchal Niel Rose tree on the south wall of this house. It is full five weeks earlier than last year's first bloom. The tree is literally covered with buds, as is also that of Gloire de Dijon, Banksia, and many others of the dwarf Perpetuals. This part of Warwickshire is generally considered a cold region, but this winter we have had flowers blooming in the open ground without any cessation. —ROSE KINGSLEY, Tuckbrook Mallory, Leamington.

GARDEN FLORA.

PLATE CCCXXXII.—VANDA CÆRULEA.

PLACING before our readers an illustration of an old garden plant may sometimes do good service, particularly if, as in this case, an exceptionally fine variety is represented. The blue Vanda is one of the loveliest of tropical Orchids, and, as regards the peculiar hue of the flowers, quite unique in the vast family to which it belongs. It is a native of Northern India, but it was years after Griffith first discovered it in the district of Khasya that it was introduced to cultivation. About thirty years ago Mr. T. Lobbs first sent home living plants of it, which at that time naturally produced quite a stir among Orchid growers. Nevertheless, it has never become plentiful, and really fine specimens of it are the exception rather than the rule, notwithstanding the fact that it is not one of the most difficult plants to manage. The importations that have been made from time to time have given rise to a great variety of forms—some good, some quite the reverse, and the gap between a really fine form of this Vanda and an inferior one is very wide indeed. The variety represented on the accompanying plate is by far the finest of any we have seen, and is, as may be expected, extremely rare. The material for our plate was supplied by Mr. E. Fowler, of Ashgrove, Pontypool, and later on Sir Trevor Lawrence brought us a grand raceme of a similar and equally fine form, which we believe is generally known as the Burford Lodge variety. The delicate crystalline substance of the blue blossoms and their singularly chequered markings of rich purple are almost inimitable. The growth of the plant is erect, the comparatively short and thick foliage being arranged in two rows on each side of the stem. From the leaf axils on the upper part of the stem the flower-spikes are produced in an upright manner, and they sometimes carry as many as a dozen flowers on a spike, but this number is exceptional. They are produced in autumn and last some six weeks or more in perfection.

CULTURE AND POSITION.—The blue Vanda is, as a rule, grown in company with other Orchids, requiring a large amount of heat and moisture, but Mr. Fowler's mode of culture appears to somewhat differ from that generally followed. He says: "We do not grow this Vanda in the East Indian house with the rest of the species. It does remarkably well here in a moderately heated span-roofed stove along with a mixed collection of plants, and during the growing season it is syringed overhead morning and afternoon with the rest of the plants. As the days get shorter overhead syringing is only done on sunny days, and is wholly discontinued in winter, when just sufficient moisture is given to keep the Sphagnum in which it is growing alive." Thus managed it succeeds admirably.

PLANTS IN FLOWER AT SCHÖNBUNN.

VISITING lately the plant houses at Schönbrunn, I noticed the following Acacias in flower, viz., A. lineata, balsamea, angustifolia, chlorantha, glaucescens, Forbesi, Oxycedrus, and verticillata. Equally noteworthy were Cytisus grandiflorus and the white-flowered C. filipes; also two standards of Viburnum macrocephalum with heads several feet in diameter. Cheiranthus linearis, with light blue flowers, was likewise most attractive, and the same may be said of Adesmia viscosa, a yellow flowered Leguminous plant from Chili; Ceanothus dentatus, the white-flowered Pimelea intermedia, Grevillea flexuosa, with very ornamental leathery foliage; Rhododendron javanicum, and Pultenaea daphnoides. The white-flowered Intelia uniflora, from Buenos Ayres, was very attractive, as were also several plants of Tropaeolum tricolor, trained



VANDA CILIOLATA.

on round-shaped wire trellises. Kennedya bimaculata was covered with its intensely blue flowers, whilst Bomarea Carderi, from New Granada, showed a number of its beautiful rose-brown spotted flowers. In the Orchid houses I found Phalenopsis amabilis, Batemannia Colelei, Masdevallia Harryana, a species of Gongora with light yellow flowers, and last, but not least, the curious Acinetia Humboldtii, from New Granada. The great Palm house is nearly finished, the heating apparatuses having been just put in working order.

Leaving Schönbrunn, I visited the spring bulb show of the Horticultural Society of Hietzing, a suburb of Vienna. It consisted chiefly of Hyacinths and Tulips, which, owing to the fine weather we have experienced this season, were all in unusually good condition. Amongst the Hyacinths I observed a noble group. It consisted of Miss Nightingale, double white; Howard, single red; Lord Derby, light blue; Garibaldi, red; King of the Blues, Uncle Tom, nearly black; La Tour d'Auvergne and La Grandesse, two double whites; and Ida and La Jaune, two yellows. Tulips were also conspicuous, as were likewise Crocuses, Amaryllises, and Cyclamens. Amongst other bulbous plants, Scilla præcox, S. hyacinthoides, Iris persica, Narcissi, Fritillarias, and Deliytras were all very attractive.

Calling at Mr. Hiebrenk's nursery, he showed me several thousands of Begonia seedlings, hybrids of shrubby kinds crossed with B. Rex. It will be interesting to see in the course of the summer what results his labours in this respect will bring.

LOUIS KROPATSCH.

Laxenburg.

KITCHEN GARDEN.

FORCING ASPARAGUS OUT-OF-DOORS.

LITTLE can be added to the exhaustive instructions of "J. C. C." (p. 163) relating to this subject. The only drawback to the method recommended is the untidiness, which is inseparable from the practice. Still, if the situation for such beds be judiciously selected, this need hardly be considered an objection. When cultivated in the open air, what may be called the Asparagus season seldom commences before the second week in April, and extends to the beginning of June, or even a little later if desired, or at least for a period of between two or three months, while with the assistance of artificial treatment its season may be extended to close upon six months out of the twelve. By lifting a portion of plants towards the end of November, and planting them in a pit or frame upon a brisk bottom-heat, the Asparagus so produced will generally be fit to cut by Christmas, and may be succeeded by other batches of plants introduced to heat at later periods, and by such means the necessary supply may be maintained until it comes into use in the open air. In this way plants forming old, and to some extent worn-out, beds may be utilised, and after being forced, relegated to the rubbish heap. In order to have Asparagus so early as Christmas or soon afterwards, this is, no doubt, the best method of obtaining it. But the produce of such plants, with their roots necessarily to some extent mutilated by the operation of lifting and being forced into growth during the depth of winter, cannot be expected to be at all equal to that of plants growing in the open air with their roots undisturbed. It is found that when such plants can be excited into growth at a more or less early period of the year by the application of warmth supplied to them in the beds where they are established, by the use of fermenting materials, or by what is much better, the use of hot-water pipes, which obviate anything like untidiness, the produce is little if at all inferior to that produced naturally, or without forcing of any kind. Beds intended for this purpose may have their sides and ends formed of brickwork, and a movable glass roof. This, however, necessitates considerable expense, and is not absolutely necessary; therefore brickwork may be dispensed with, except what may be required for the forma-

tion of a small furnace with shaft, &c., which should be placed in the most convenient position at one end of the bed or beds to be heated.

The beds should be some $4\frac{1}{2}$ ft. or 5 ft. wide, and any desired length, say 20 yds. or more. Two such beds as this would furnish a fair supply for most establishments during the time which would intervene between the production of the early forced plants in use so early as Christmas-tide and the coming into use of beds or plantations in the open air. The soil should be thrown out to a depth of at least $4\frac{1}{2}$ ft., and if danger from water is apprehended ample drainages should be secured, and the bottom of the beds should be covered with flints or brick-bats, on which should be laid a flow and return 4-in. hot-water pipe, which should be loosely covered with clean stones or brick-bats in such a way that the warmth from the pipes would be likely to circulate freely among them, and they ought to form a layer not less than 1 ft. in depth. Upon this should be placed a thin layer of straw or dry stable litter, so as to prevent the superincumbent soil from percolating among the stones or brick-bats, and along the centre of each bed, and resting upon the brick-bats which cover the hot-water pipes, should be placed in a vertical position 4-in. drain pipes at a distance of some 6 ft. from each other. These will convey surface heat to the beds when enclosed or covered with their movable frames. As the hot-water pipes are necessarily at a considerable distance under the surface of the soil, the boiler will require to be set accordingly, and if the ground has an incline, that is if one end of the bed is lower than the other, it should be set at the lower end, while due provision should be made to carry off water from the stoke-hole, which might otherwise be troublesome during rainy seasons. The supply or expansion cistern with close fitting lid should be placed at the opposite end of the bed, and should be elevated to the level of the surface of the soil, and the flow and return pipes should be so connected with it that the water will flow through it, while the elevation of the pipes to this level at the end farthest from the boiler will tend to promote a free circulation of the water and will afford a ready means of ascertaining the heat of the water in the pipes. One boiler may be made to heat two or more such beds as have been recommended, if the same is furnished with proper valves to turn off or on the hot water as required, so that either one or both the beds might be worked at the same time.

Soil and planting.—The soil of which such beds are composed ought to be of a light, but rich character, and if the natural soil is not such, a portion of rich light loam or the top spit of an old pasture should be added to it, as well as a liberal supply of well-rotted hotbed or stable manure, and as early during the month of April is generally considered to be the best time to plant, the preparation of the beds should be completed at least a month before that time to allow the soil time to settle down. In the planting of such beds two-year-old plants should be used, and each bed should contain three rows or lines of plants, which ought to be planted at 12 in. or 15 in. apart. The roots of the plants ought to be spread out carefully upon the surface of the beds, and afterwards covered with some 3 in. of fine rich soil, pressing the same gently around them, taking care at the same time not to break off the young shoots, which will be some 2 in. or 3 in. long and generally somewhat brittle, and if dry weather prevails the beds should be well watered. Such beds ought not to be forced until at least the second year after being planted. Although hot-water pipes must necessarily be laid and fixed previous to the formation of the beds, still the furnace and chimney need not be built nor the boiler set or fixed until such time as forcing is about to commence. The beds may be made to either run north and south or east and west; but in order to secure for them, when covered with the frames, the full benefit of such solar influence as may be expected during the winter or early spring months, the latter is to be preferred. For the purpose of covering beds some 5 ft. wide the

frames should be 6 ft. wide, and for convenience in moving need not exceed 12 ft. in length; they should when used be placed end to end until the whole length of the beds is covered. They should be some 12 in. high at the front and 18 in. at the back, and should if be desired to bring the surface of the beds nearer than this to the glass, this can be done by letting the frames into the soil. When the forcing of such beds is about to commence it is advisable to throw out a trench close to each side of the same, about 15 in. or 18 in. wide and about as deep as the level of the pipes, and this should be filled up with dry leaves or litter trodden firmly down and covered with soil, this being intended to act as a non-conducting medium, in order to as far as possible prevent the warmth from the pipes spreading to the adjoining soil instead of being confined to the beds.

Cutting.—When the supply of Asparagus can be obtained from plantations in the open air, cutting from those beds under frames should be discontinued; if the weather is mild, the frames should be altogether removed, and the beds should have a rich surface-dressing of some sort applied to them, which may be allowed to remain on during the summer. During the process of forcing, more particularly during frosty nights, the frames should be covered up with bast mats, or what is better and less littery, pieces of frigi domo, cut to the dimensions required. But this should always be removed during the daytime, except when the weather is very inclement. It will be found that when the plants forming the beds are once fairly excited into growth, but little assistance from the pipes will be required to keep them moving more or less rapidly, and the supply can be regulated by the demand, hence one of the advantages which hot water possesses over fermenting material. If the forcing of such beds does not commence very early, say not before the middle of January or beginning of February, the same bed or beds may be forced annually for many years without deterioration; one bed at least similarly formed to what has been described can be pointed out which has been so treated for certainly not less than fifteen years, and is still in excellent condition. It is found that where such beds are regularly forced year after year the plants become much more easily excited into growth, and, in fact, require much less forcing than is the case with beds forced for the first time.

Bury St. Edmunds.

P. GRIEVE.

NEW AND RECENTLY INTRODUCED VEGETABLES.

THE time has now arrived when we must select the different things to be grown this year. It is not difficult to select flower seeds, as in few gardens are annuals alone depended on for a display throughout the year; but it is different with vegetables, the most important of which have to be raised from seed every year, and the quantity and quality of the produce is always much influenced by the varieties grown. Some who may not have tried many of the recently introduced vegetables may be inclined to think that none of them are superior to the old sorts, but this is incorrect. Although, of course, every new production or fresh name is not a sure indication of excellency, there are, at the same time, many recently introduced kinds of vegetables which well deserve to be brought prominently into notice; but, as mere lists of names would convey little information, I will briefly note a few of their most important features, and at the same time name a few which may be avoided.

Asparagus.—The giant variety is commonly grown, but Connover's American Colossal is newer, and generally considered to be superior to the Giant; we have not, however, found it so. With us the two are much alike. We have raised both from seed obtained from a trustworthy source, and no one could see any difference as regards productiveness, and I think those who possess a good stock of the Giant would gain nothing by discarding it and substituting the Colossal. It may

be remarked, however, that *Asparagus*, like all other vegetables, may be improved by selection, and when this is done carefully, improvement will take place, as is exemplified by the true Reading Giant and the Mammoth Emperor, both of which deserve a trial.

Beans.—Kidney Beans are favourites with everybody, and much attention and space are devoted to their culture in most gardens. Amongst dwarf-growing kinds we have found none yet to equal Canadian Wonder for general culture in the open air. It is a robust grower, very prolific, and the pods are fine in size and flavour. I find, however, that there are inferior and superior varieties, the pods of some being short and scarce. The strain we had of it last year is the finest we ever saw, and care will be taken it is not lost again, and we would advise others who may have an extra fine stock to look after it. As a variety for forcing in autumn, winter, and spring, Osborn's Forcing is much superior to any other we have ever been able to get. It is a dwarf grower, pods early and freely, and is altogether most serviceable. Amongst Runners White Champion or Giant White is the finest of all. It is wonderfully prolific, and the pods are both big and tender, and delicate in flavour even when old. In Broad Beans Leviathan has been our favourite for some years, and I am sure it will be liked by all who have grown it. It grows strongly, bears early, abundantly, and the pods are extra large and always well filled.

Beet.—Of this many varieties need not be grown; and, although there are not many sorts in cultivation, there are enough to make some distinction. Dwarf compact top growth and deep colour of flesh are the points to look out for. Dell's Crimson possesses these to a large extent, and all who grow Beet will find this a suitable variety, either for large or small gardens. The Turnip-rooted sort has the recommendation of maturing early and suitable for shallow soils, and those who have these considerations to study should grow some of it; but, as a main-crop variety, it should not be grown in a general way. The Silver or Seakale Beet is grown for the sake of the mid-ribs of the leaves, which, when cooked, resemble Seakale, and from July until January we have found it to make a good change. One row of it, 20 yds. long or so, will give a large supply throughout the season.

Borecole.—The most useful kind of this is the curled Scotch Kale, which bears severe weather well, and in spring is really a tender vegetable. The only other varieties worth noting are the variegated forms now offered by several seed firms. These are extremely hardy and beautifully variegated, which makes them valuable for garnishing purposes, and they are also good as a vegetable, as many proved last spring, when they had little or nothing left in their garden but variegated Kale.

Broccoli.—This forms an important crop, and in selecting varieties more care is required now than ever, as our arctic winters proved disastrous to many. Veitch's Self-Protecting Autumn, Osborn's Winter White, Cooling's Matchless, Leamington, Carter's Spring White, and Sutton's Late Queen are all excellent varieties to insure a supply from October until May. The first and last-named are special favourites of ours, as we never saw anything in the early or late Broccoli class to equal them.

Brussels Sprouts.—I do not think that any new Sprouts ever introduced were so much patronised the first year as the Aigburth has been this last season. To make sure of getting the true sort, we had our seed from two parties, and have cultivated it in a good spot with some care. About half the plants have produced a splendid lot of Sprouts, but some have hardly formed one, and show a different character from the others, which makes one think that further selection would still improve it. In fact, anyone who would take it in hand might make a good variety out of it, and then probably it would not surpass Sutton's Exhibition variety in producing a full and unailing crop. To those who have no confidence

in new things, the Dalkeith variety is an old, well-tried, and valuable Sprout.

Cauliflowers.—Carter's Extra Early Defiance is the best of all our early Cauliflowers, and should be extensively grown as such. It is very dwarf and compact in growth, quick in coming to maturity, and the heads are most compact and of the purest white. Sutton's King has proved with us to be the best of all the mid-season sorts, and Veitch's Autumn Giant the finest autumn sort; of this kind it is impossible to speak too highly, and wherever autumn Cauliflowers are grown this should never be omitted; it is not new but comparatively so. Walcheren, Early London, Asiatic, and others often named are far behind those just recommended.

Cabbage.—Dickson & Co.'s Redbraes has for the last two years or so superseded all other Cabbages with us as a main crop sort. It heads quickly, is of large size, firm, tender, and distinct; but it is not quite the earliest. In this respect Messrs. Sutton sent me a new one that comes in very early; it is named Extra Early Dwarf, and it really is so in every sense of the word. It is the earliest Cabbage I know of. Early York we have quite given up, as it was so prone to run to flower in spring before hearing. Pearson's Conqueror is one of the most reluctant to run to flower, and is a valuable Cabbage. Among the smaller sorts, Wheeler's Cocoa-nut is good. It may be planted very close, and the heads are perfect models in shape, and favourites in the kitchen, where coarse Cabbages never find favour. For pickling, the Blood red is the only kind grown.

Celery.—Drumlanrig is the dwarfiest, most solid, and crisp of all the white kinds, and Major Clarke's Red is perfection in its colour; but the largest kinds of Celeries are never the best to grow, as they are generally too coarse.

Carrots.—James' Intermediate is the best kind for main crops. It may be grown fine in size and quality in a soil 10 in. deep. The roots are short, thick, high coloured, and good when cooked. The Horn varieties are all useful for early borders or frames, and amongst these Carter's Early Improved Horn is the most profitable, as it is so thick at the extreme end, and there is no waste with it the same as there occurs in the tapering ones. Altringham and Long Surrey are only fit to grow for cattle feeding purposes, but the French forcing may almost be grown to perfection in a cutting box.

Cucumbers.—For table use Telegraph is not yet surpassed, and it is a grand Cucumber for the four seasons. Tender and True is a fine kind to grow if exhibition is the only object in view. Pettigrew's Cardiff Castle is a new one of much promise. It is an immense bearer, medium sized, and well formed. Freeman's, 3 ft. long, I have never been able to see in good condition, but long Cucumbers are a great mistake, and should not be encouraged. King of the Ridge is the best for open air culture.

Leeks.—During the severe winters we get now these are proving valuable and acceptable, and many would find them pay well for a little extra attention and good culture. Severe weather, no matter how rigorous, will not injure them, and this is more than can be said about many vegetables. In varieties little difference can be seen between Aytton Castle, Henry's Prize, and the Musselburgh; they are all alike good.

Lettuces.—Of these several kinds must be grown to keep up a supply all the year round, and the following will do this: Cos—Sutton's Superb White and Green varieties, Brown Sugarloaf, Hick's Hardy White, Cabbage—All the Year Round: Malta, Sutton's Marvel, Wheeler's Tom Thumb, and Stanstead Park.

Onions.—These may be divided into two sections—one for spring sowing, the other for autumn. For spring, Webb's Banbury and Sutton's Reading are excellent. Trebon is also good, being more conical in shape, and, therefore, very suitable for wet localities; but we find some difficulty in getting it true. James's Keeping is also a good

one, as it remains so long in sound condition. Giant Zittau appears to be the same as Trebon; and the Oporto does not differ much from either. White Onions are generally mild in flavour, but they do not keep well in the ground in wet weather, nor in the shed when stored, and for these reasons they do not find much favour. The Tripoli and Giant Rocca are most suitable for autumn sowing, and there is a kind named The Queen also good, as it matures quickly. Silver Skin is the kind to grow for pickling.

Parsley.—Few things differ more in character than this. It is all supposed to be beautifully lowered, but much of it is not so, and this certainly lowers its value greatly. When a really good plant is found, the best way is to save seed from it, and such opportunities occur here and there in almost all strains and varieties.

Peas.—Of these there are now a great many varieties, and we have tried the greater part of them; many of the newer kinds combine quantity and quality of produce to a wonderful degree, and this is all that is wanted. William the First is still a fine early sort—Telephone, Telegraph, Fide of the Market, Stratagem, Veitch's Perfection, Ne Plus Ultra, and Laxton's Omega are all good and fine for succession. Culverwell's New Giant Marrow will be a standard sort when cheaper. John Bull, which passed us so much in 1880, did not turn out so well in 1881; probably this was owing to the seed being imperfectly ripened, and we will certainly give it one or more trials, as it is a very fine Pea when seen at its best. From Messrs. Sutton we had a batch of new Peas to try last spring, and the one now to be introduced under the name of President Garfield will do credit to that firm and the name which it bears. One in this batch, named the Mammoth Marrow, is a promising kind. Others we had from the same firm were only under numbers.

Radishes.—These may be grown all the year round, but variety, not culture, must be depended on for a supply. The red and white Turnip varieties are the best for early work. For coming in from October until spring the China Rose variety is the best. Black Spanish is also hardy, but it does not swell quickly enough in cold weather to please us.

Savoys are most valuable in winter, and should always be included amongst winter greens. Drumhead is a very large sort. Green-curbed is more choice, and Tom Thumb is very small. Spinach is one of our most valuable vegetables, and the Round-seeded is the best for spring, summer, and early autumn, while the Prickley sort is the most useful in winter.

Tomatoes.—These are now so popular that they must be included in all seed lists. Their numbers are many, and good distinct varieties few. Drumlanrig is a new kind, which will have few equals. Crossling's Glamorgan is prolific and good, Carter's Green Gage is high flavoured and yellow, and Red Currant and Yellow Plum, from the same firm, are ornamental.

Turnips must also be had all the year round. Snowball is the best early sort. Carter's Jersey Lily is a beautiful kind for summer, and Chirk Castle is decidedly the finest for winter. For this season we have grown some yellow and other colours, but the Chirk one is now the only kind; it is black in the skin, and snowy white inside.

Potatoes have been left to the last, but their selection is not by any means of the least importance, as variety here differs as much as in anything else. Apart from quality, those which will resist the disease best are always favourites; and for this and other qualities, the following are our selections from amongst some dozens of kinds: Gloucestershire Kidney, Mona's Pride, Improved Peach Blow, Schoolmaster, Magnum Bonum, and Scotch Champion.—*Field.*

Earliness of vegetables in Wales.—In a garden at Rhymand, S. Wales, there are three rows of Peas 2½ ft. high in blossom, likewise Broad Beans in pod, and a good dish of Asparagus was cut in the open yesterday.—J. W.

SPINACH IN SMALL GARDENS.

I WOULD like to see this more generally grown in small and middle-class gardens than it is. Of all vegetables it is one of the easiest to grow, and the quickest to arrive at maturity. Seed of it is cheap and generally good, and it will often grow luxuriantly, even in cool, shady corners where most other vegetables would grow. On this account we have sometimes grown it in the worst parts of the garden, but we find it to be so much appreciated that it cannot be too well grown, and now we put it in some of our best soil. It may be had all the year round from the open air, and this is more than can be said regarding any other choice vegetable. In summer it becomes ready for use in a month or so after sowing the seed, but at this season it takes a week or two longer. Seed sown at once would supply fine succulent leaves by Whitsuntide or earlier, and by sowing more seed every fortnight until the end of August, a supply might be had weekly until far into next spring. Where ground is scarce, it may be sown broadcast, and when the plants are a few inches high part of them may be drawn out and used, the remainder being left to grow and form as it were a successional crop. Where ground is more plentiful, it is best sown 1 ft. or so apart. Here, again, the plants may be thinned in the rows and used before the others are ready.

Another plan with Spinach is to sow it in small fruit plantations, such as between Gooseberries, Currants, Raspberries, Strawberries, and similar crops. We have also had it between Asparagus rows before the latter required all the ground, but it is well worthy of a piece of soil to itself, and I only mention these extra places for the benefit of those who may think they cannot give up one of their main quarters to it. In hot, dry weather it is rather inclined to run early to flower, but this occurs more readily and oftener on poor soil than on that which is good. It is the round seeded variety which is best for summer use, and the prickly one is the most suitable for winter. The drills for the reception of the seed need not be more than 2 in. deep, and for the winter crop the plants should always be thinned out sufficiently to stand clear of each other before the shortest days.

J. MUIR.

SHORT NOTES—KITCHEN GARDEN.

Sowing Tomatoes.—When is the best time to sow Tomatoes for winter produce? and what is the best mode of treating them?—G. H.

Large smooth red Tomato.—This is described in the *Bulletin d'Arboriculture* as a variety of exceptional merit. It was obtained from the large early red, the favourite of the French market gardener, but unlike that kind it is not in the least channelled, the whole surface being as smooth as the skin of a Plum, a fact which adds much to its value, especially from a commercial point of view. It is being distributed by Messrs. Vilmorin, of Paris.—J. CORNHILL.

Heights of Peas.—Mr. Gilbert says (p. 244) that Pride of the Market and Stratagem are both good where 6 ft. stakes and plenty of room is no object, a statement not strictly correct, as these two varieties only grow about from 2 ft. to 3 ft. high, and can absolutely be grown about any stakes at all.—JAMES CARTER & Co.

—Messrs. Carter, speaking of Stratagem in their list of novelties, say it grows to a height of 8 ft. On referring to their description of Pride of the Market, they say it grows from 18 in. to 2 ft. high. I should be glad to know what height these Peas really reach, as I intend sowing both sorts in a few days, and I want to know whether I must provide stakes 6 ft. high or only 2 ft.—J. C. C.

Aigburth Brussels Sprouts.—Mr. Muir (p. 157) just hits the right nail on the head when he says large Sprouts are weak points; nevertheless, please differ in opinion on this matter. One likes large Sprouts; another says, "Don't send me any more semi-Cabbages instead of Brussels Sprouts; I like them small and handsome; don't you know small Brussels Sprouts are much sweeter than large ones?" I did not then, but I do now.—R. GILBERT, Burghley.

FRUIT GARDEN.

POT STRAWBERRIES.

ONE of the most important points in connection with the forcing of these frequently fails to receive due attention, viz., timely thinning of the fruit. One dish of fine, uniform fruit is worth half-a-dozen of small deformities, and if some adequate return is looked for to compensate for the time and care bestowed on the plants, it is absolutely necessary that thinning be attended to, for it is just as requisite in the case of Strawberries as it is in that of Grapes or any other choice fruit. As soon as a sufficient number has set, all superfluous flowers should be at once cut off, leaving about a dozen, more or less, of the most promising according to the strength of the plant. Strong plants in a perfect position and well nourished will perfect that number easily. I find a pair of strong shod scissors to be the most expeditious tool for the purpose, and even where large quantities are grown at a time, two active operators can soon thin a large number. Where the pots are placed upon some moist material into which the plants can root it is a great advantage, inasmuch as it assists the plants and lessens the attention needed as regards watering, but the plan often recommended and practised of placing them on a bed of manure kept on the shelf by means of zinc on wood side pieces tacked on is often inconvenient. Thus treated, they cannot be moved after rooting through has taken place without injury; whereas here quantities have often to be moved from house to house to hasten or retard their ripening in order to meet some impending occasion. It is of importance that the material under the pots be moved with them. Square pieces of turf are sometimes used, but if the plants are up on sunny shelves (where they ought to be), I find that these turves are apt to get parched, the roots made in them perish, and more harm is then done than good, as the plants receive a check when they can least withstand it. Where saucers are procurable, a better plan is to fill them with good decayed manure, and upon that place the pots. We have some that were so treated when first housed, and the saucers under them now contain such a mass of roots that the pots can be lifted out of them with every particle of manure adhering to them. The saucers should not be larger than the pots employed, or the plants may suffer from stagnant moisture. Complaints are general in this neighbourhood as to first batches of Vicomtesse Héricart de Thury coming weak and short-stemmed, but succession lots look strong and promising. Will anyone kindly state their experience of La Grosse Sucrée as a sure setter for very early forcing? Is it as reliable as the Vicomtesse? or does it possess that firmness which makes that variety so admirable for travelling?

A. MOORE.

Cranmore Hall.

STANDARD PEACHES.

I QUITE agree with "J. C. C." (p. 209) that subjects like this should be laid before the public in all their bearings, but if I am not mistaken your correspondent has more than once condemned the system without furnishing a single particular as to the results of his practice, while several correspondents, including myself, have furnished accounts of years of successful practice with standard Peaches, giving particulars of crops, quantities and qualities, and I would like to ask what anyone wants besides? When we hear of single trees (like those at Whitehill, mentioned in THE GARDEN some time since) that produce fifty dozen Peaches in a year, and that have gone on bearing in that proportion, less or more, for about a dozen years, the fruit being pronounced to be large and of the best quality by competent judges, fruiterers and others, I think the public cannot complain of want of testimony on the subject, remembering the system is in its infancy. For purposes of experiment, I planted a maiden standard Peach tree exactly a year ago now that had only two buds, not shoots on it, and at the present time it bears about seventeen dozen fruit

fairly set, and about as large as Peas. Whether they will stay on or drop, I cannot say, but if they do swell, I have not the least doubt that I can both ripen and colour them perfectly. As to houses, I know important gardens where large span-roofed houses are built for trellised trained trees, and if "J. C. C." desires it, I will undertake to procure him estimates for houses for standards, and neither very wide nor very lofty, as cheap as he can build them by any other plan. I have no doubt I can find plenty of hothouse builders who will do this. The standard tree is designed, unless I am much mistaken, to supersede the trained tree for late crops under glass, and not a few are planting them now whose experience by and by will probably demolish the theories of objectors to the practice.

J. S. W.

GRAPE GROWING IN SHEFFIELD.

HEREWITH I send you a photograph of a vine in Sheffield, belonging to Mr. Nowill, an amateur gardener of some four years standing, who does all belonging to the Vines himself in his leisure hours—pruning, training, and thinning. The vine, it will be seen, is filled with plants as well, including Ferns and Orchids, the latter in baskets suspended under the Vines. I have thought it might interest your readers as an example of most successful culture under difficulties. There are two houses photographed, and the other shows a crop equally as fine as the one sent, which shows one of the heaviest crops of Grapes I have ever seen. The idea of having the Vines photographed was not suggested to Mr. Nowill till after one or two of the Vines at the near end had been pretty well cleared of their crop, but they still seem more than enough even there. He cut one hundred and fifty bunches on Christmas Day last for his friends. The Vines are four years old, have filled the house, and have been fruited more or less during that time. The division shown is only 25 ft. long, and the appearance of the crop tells its own tale. It is remarkably regular, bunches nicely thinned, and berries large. Mrs. Pince is his favourite Grape, which does well with him.

J. S. W.

[The photograph sent fully bears out all that is here stated.]

Growing Pines for profit.—"D." tells us (p. 209) that Pines can be grown profitably by simply forming a bed of leaves in pits for bottom heat, a method which he has adopted with success for over 40 years. This I am glad to hear, but, seeing that leaves can only be collected in quantity in autumn, and that when employed for active bottom-heat they become useless through fermentation in say four months, where, let me ask, does "D." get his supplies from for the rest of the year in order to enable him to keep up a continuous brisk bottom-heat so absolutely necessary as regards ensuring a quick and profitable return?—T. COWBURN, Sanbury Park.

Scion influence on seedling roots.—Mr. Charles A. Green once mentioned in the *New York Tribune* a phenomenon which most nurserymen have observed, namely, that of different varieties of Apple all grafted in the same way on one lot of seedling roots, there is found when they are dug for the orchard after three or four years' growth a uniform character of root in each row of different sorts, the seedling roots not showing their individual habits, but assuming one habit—that of the variety grafted on them—a row of Famense or Oldenburgh being twice as hard to dig as the Red Astrachan with its shallow and fibrous roots. Mr. Green might have added the Siberian Crabs as notable examples of tough, strong, far-reaching roots. Mr. Alfred Smith, Monmouth, Me., has, however, after careful experiment come to the conclusion that scions do not affect the roots in the way intimated, but that a sort like the Red Astrachan, which emits fibrous roots readily, will, when the point of graft junction is sufficiently below the surface, rely on these roots of its own

altogether, the seedling nurse roots standing still. The Fameuse and Oldenburg do not emit roots so freely, consequently they depend upon the seedling nurse-roots, which are therefore extended, and grow with long coarse prongs after the manner of seedlings. Nurserymen, on the other hand, who are in the habit of budding their seedlings above the surface aver that their experience coincides with Mr. Green's. The case is therefore still questionable.

Standard Figs in Kent.—In this locality there existed for many years prior to the severe winter of 1880-81 some very fine and prolific standard Fig trees, that yearly produced not only great quantities of fruit, but ripened it off of excellent quality, and, by coming in after the late house fruits were over, made a very acceptable addition to the dessert. I may mention Wierton House, near Maidstone, where some excellent examples of open-air culture are to be seen; but after the severe winters mentioned, the young wood all perished. However, last year, when I saw the trees early in summer, they were just pushing out shoots from the old hard stems and branches; and if we get a series of mild winters, the open-air standards will doubtless be as prolific as ever. If the wood is well ripened, it will stand an ordinary winter without injury. In Suffolk, near the coast, Fig trees on walls did well without any protection, and old open-air standards had been, according to the testimony of the oldest garden men, looked on as the most certain fruit-producing trees in the garden. The large fruits of the Brunswick and similar sorts were put into muslin bags to protect them from wasps and flies in the days when glass houses were not so plentiful as now. Trees growing in rich garden soil make sappy, luxuriant growth, that is sure to suffer from only a moderate degree of cold, while those with short-jointed wood usually escape; therefore, it is especially desirable to plant in rather poor hard soil, and, when the crop is swelling, to give copious supplies of liquid manure. In the case of standards, pruning is not required—in fact, the most prolific trees I ever saw were left entirely to Nature. I may mention a notable tree growing in Kent at Boughton Place. It was originally a wall tree, but had been allowed to grow over a potting shed and stoke-hole until it became a large tree, and produced such fine fruit that its produce took the first prize wherever exhibited. The variety is now sold as the Boughton Place Fig, but it is in reality a well-known kind. Its roots are in the hard gravel path, but extend to better soil beyond it. For open walls, if the height is not very great, the root space should be limited; but on old mansions or castles, where the extension system of training can be freely indulged in, there is no more certain cropping fruit tree than the Fig. Of late years great attention has been directed to the production of improved varieties for pot and house culture; but my object is to induce those living in ordinarily mild localities not to forsake the open-air or wall culture of Figs. In the place just referred to, shelter from glass was out of the question.—J. Groom, *Linton*.

SHORT NOTES—FRUIT.

Fruit weights.—What is the average weight of a bushel of each of the following: Apples, Cherries, Currants, Damsons, Gooseberries, Plums, Raspberries, and Strawberries?—M.

Effect of gas tar on roots.—I purpose gas tarring a wooden trellis that forms the pathway in my vineyard, but my gardener tells me that if I do so the gas tar will kill all roots that come in contact with it; would such be the case?—J. M'K.

Ants in Peach houses.—For some time past I have been greatly annoyed by ants in my Peach houses. Their number is something astonishing, and I know of no way of getting rid of them without injuring the trees. Their hiding-places are innumerable, and I cannot use boiling water or paraffin oil. Therefore any information as to the best means of getting rid of these unpleasant pests will be than fully received.—ANATHEU.

GARDEN STRUCTURES.

SHADING PLANT HOUSES.

Few practical men are in favour of what may be called permanent shading—that is, shading put on at the commencement of the summer and allowed to remain as long as shading is required, except in the case of such structures as ferneries and perhaps conservatories, but many have nevertheless to adopt it because it is the cheapest. It may therefore be of some service to point out one or two substances that are available for that purpose. For those who do not require a dense shade "summer cloud" is in every way satisfactory. It is not expensive, and it is easily applied. The glass must be quite clean and dry, and it must be put on inside. I have used it for greenhouse and other plants that do not require very thick shading, and I find it to answer. I find that it will remain on the glass the whole summer, and, when necessary, it is not difficult to remove. Tiffany affords a very good shade for most plants; it diffuses a fair amount of light and has not an unsightly appearance. It is also easy to fix on the inside of all wooden framed houses. Fix it to the rafters, a plan which allows a current of air to pass between the shading and the glass, thus allowing the heated air to escape more readily than when the shading is fixed to the sash-bars. Some kinds of tiffany is subjected to a chemical preparation, which is said to make it more durable, but I have not found it better in that respect than the ordinary material.

I have found the following mixture a good substitute for either of the above, though not quite equal to them, viz., three parts of skim milk, one pound of whiting, and 3 oz. or 4 oz. of glue dissolved, the milk being heated, but not boiled, and the whole mixed together and applied to the inside of the glass while the mixture is warm and the glass dry. I may remark, however, that this mixture is not so easily removed in the autumn as plain limewash or "summer cloud." For permanent outside shading perhaps nothing is better than a netting manufactured for the purpose by a firm in Cornwall. This is white in colour, composed of small meshes, and made with a strong thread. Its appearance, therefore, is light, and it is also durable, and affords a fair amount of shade without obstructing too much light. The best form of shading is, however, blinds and rollers, and where expense is not taken into consideration, these should be used in preference to any other material, as they enable the cultivator to treat his plants in a proper manner. Where there are roller blinds to be drawn down at pleasure, there is no necessity to shade the plants when it is not wanted but with shading fixed either inside or outside it must of necessity remain there on dull days as well as when the sun shines brightly. Therefore the plants are shaded, taking an average of seasons, a very much longer time than is absolutely necessary. A good deal depends of course on the consistency of the permanent shading; but one can hardly estimate the extent of injury which overshadowing does in the case of a mixed collection of plants. Dealing with a houseful of Camellias or Ferns that require dense shade is much more easy than a houseful of stove plants consisting of hard-wooded and flowering plants and tender foliaged exotics mixed together.

Movable blinds should always be employed for such houses, but something may be done by placing at one end of the house such as require the most shade, always bearing in mind that the farther plants are from the glass the less shading is necessary. The farther plants are from the glass the larger is the vacuum of air through which the sun's rays have to travel, and their force is moderated in proportion. Therefore the nearer tender foliaged plants are to the glass, the greater should be the thickness of the shade to maintain their leaves in a healthy condition. J. C. C.

Hot-water pipes.—Hartwell" (p. 185) must be very careful in using pipes coated with gas tar inside hothouses. Of the two lots he has

to select from, the rusted ones will be preferable. After the pipes are fixed and ready for filling, get half a bushel or so of fresh lime (according to the quantity of piping) and put it in a large tub or hogshead with sufficient water to boil it well. When finished boiling fill the tub up with clean water and stir the contents well together; let this mixture stand till clear, and then put it into the feed cistern and fill up with clean water. Allow the water to circulate pretty freely for a few days, when the rusty water may be run off, and refilled with rain water, which may be safely used for anything. If the outside of the pipes is rusted, take a soft brick and rub it off, and put on a coating of lampblack and boiled linseed oil. Lime wash is better where it is not objectionable, as it preserves the iron and leaves the pores open.—JAMES SMITH, *Waterdale*.

Ventilating plant houses.—Mr. Fawkes tells us (p. 207) that from a scientific standpoint there must be an inlet for the outer air and an outlet for the inner air, but the assertion is valueless, because we cannot prevent the outer air from rushing in at the outlet as well as at the inlet; in fact the basis of this theory is that the warm air ascends and passes out at the apex, while the colder air enters at the base. But if on the one hand the outer air, being heavy, will force itself in at the very aperture out of which the warm air is to pass, it will have to descend through the warmer air in its course, getting partially warmed in its passage and partially cooling the warmer air also. Thus by the simple process of ventilating from the apex only the air is being renewed and yet no current is caused. But in glass houses it is too much the rule to overlook the fact that every lap is a ventilator, and one of the best kind, and by means of the laps air is being constantly changed. Air is never stagnant; it is ever in motion, and the assumed necessity for cold currents of air, as founded on the bottom system of ventilation, arises not from the internal atmosphere becoming stagnant, but because in sunshine it becomes overheated. For this a little artificial shading is the best corrective. We find in the case of Orchid, and indeed of forcing houses of all descriptions that plants may be grown in the greatest luxuriance without special contrivances for the introduction of air, or even of its expulsion. The process of change goes on gradually and most satisfactorily through laps and other trivial apertures; indeed, the now vast experience of market plantmen as well as that of Mr. Cannell shows that an ample provision for top ventilation is all that is needed to keep plants in good health and perfection as regards bloom.—A. D.

Anthracite coal.—I do not think "Pompadour" will be able to burn this coal in a saddle boiler furnace. I once tried it in the case of a flued saddle set as an auxiliary to an upright tubular boiler, and it failed to burn economically, there not being sufficient draught for its perfect combustion. In upright tubular boilers or where a very strong draught can be had I prefer it to coke for several reasons: it does not clinker, and there is not so much sulphur in it as there is in coke; a large quantity can be stored away in a small space, and it does not appear to be any the worse for exposure to the weather. Coke I always think seems to be stronger and to give out more heat when fresh from the factory. Lastly, but not least in importance, is the fact that it is smokeless. For boilers that will properly burn it I consider it cheaper than coke, unless the latter can be had at a very low price.—W. SIMPSON, *Eastwood, Palford*.

—I have been using anthracite coal in an Independent Star boiler for the last six months, and have found it both cheaper and more reliable than coke. It never "bridges." The stove can be left for twenty hours with the greatest certainty. The only point to be observed is that it must not be larger than, say, lumps of 2½ in. to 3 in. square. This rather troubled me at first, it being difficult stuff to break, but now the dealers supply it in a size fit for use.—F. P. COLLINGS, 22, *Balfour Road, Highbury New Park*.

INDOOR GARDEN.

IPOMÆA BONA-NOX.

ALTHOUGH this is a most interesting and really beautiful stove climbing plant, yet, singular to say, one seldom meets with it except in botanic



Ipomœa bona-nox.

gardens. It is a plant which has been long under cultivation, having been grown as far back as the middle of the last century. It is a rapid growing plant with slender stems, furnished with heart-shaped leaves. The flowers are tubular, and the corolla, which measures from 4 in. to 5 in. across, is pure white, with five green streaks on the outside. It expands about nine o'clock in the evening, and remains open till daylight. It is an easily cultivated plant in a moderately warm stove, grown either in a large pot, or planted out in soil consisting of equal parts loam and peat, with a little sharp sand. It is a native of Jamaica, where it festoons the trees along the banks of the river in a beautiful way. It may be raised from seeds, procurable in almost any seed shop.

NEW CHINESE PRIMROSES.

I HAVE no desire to travel over the beaten track in regard to this flower—to tell of time for sowing, of suitable soil, of pots and shifts, and of other stereotyped detail, matters with which almost everyone now is familiar. I rather wish to refer to what is being done in the way of producing new colours, securing greater substance allied to size, and good fringed margins. A bloom of a Chinese Primrose, be it ever so large or so stout, if devoid of a fringed margin is wanting in beauty, and therefore there is little prospect that whatever improvements may yet come to the flower they will [be in the direction of smooth edges. On the other hand, there is a marked tendency on the part of some flowers to exhibit not merely large, overlapping petals, which give fullness and body without detracting from the beauty of the flowers, but an excess of them, so that the blooms present a crumpled appearance. In no case do these prove so attractive as smoother flowers; indeed, all the rare beauties seen in a fine Chinese Primrose bloom are only visible when the flower is bold and flattened. We therefore find the best features of these flowers to be size, substance of petal, bold flattened form, and an ample fringe. But we are now, more than in the past, labouring to secure that great charm of all the Primrose variety—a clear, well defined, lemon or yellow eye. In many flowers the eye is almost green, in others it is shaded or mottled, and in others it is clear and well defined. Even in these Primroses the florist's fancy a thrum eye is found prominent more or less, and the undoubted charm of this feature lies in the comparative finish that the prominent anthers seem to give to the throat that is thus closed, and in the most pleasing way. Pin-eyed flowers are of course very useful for

crossing purposes, and they are always abundant, but the pistil often projecting, and the anthers halfway down the throat are not refined properties; they must be endured because inevitable.

Habit and leafage.—Putting aside for the present reference to colour, an important element in a good Chinese Primrose is a good habit. Some of the old kinds, the Market White especially, have been marked by the compact growth of the foliage and the well-rounded head of bloom thrown up well above it so as to constitute a natural bouquet of flowers. Many sorts that have good flowers are wanting in habit, but it is a matter that must not be lost sight of. Few kinds recently exhibited have shown this pyramidal form more admirably than Princess of Wales, shown by Mr. Cannell at South Kensington last December, but that was doubtless bred from the Old White kind; indeed, if anyone will take the trouble to cross the Old White with the Chiswick Red, they most likely will get similar kinds. The Fern-leaved varieties are less popular than formerly, perhaps for the excellent reason that the foliage, though handsome, is too protruding and brittle, the plants needing much more space than the old kinds require. As the Fern-leaved flowers are in all cases but reproductions of those on kinds with more compact leafage, little is gained by their culture. A very pleasing feature is seen in Williams' alba magnifica, and in an interesting kind sent out by Messrs. Vilmorin, of Paris. Alba magnifica has leaves with partially curled or crested edges, whilst in Messrs. Vilmorin's kind the foliage is singularly marked in this way, and the basis of a new style of leafage is presented that should be worthy the attention of the hybridist. A very curious leaf novelty has just been produced in Messrs. Carter & Co.'s nursery, at Forest Hill. A variety having dark foliage and producing purple-flaked flowers of great size and substance has unusually stout flower-stems, and each one just beneath the truss of bloom produces four leaves set round the flowers as though arranged for a bouquet. This promises to make a fine decorative kind. Incidents like this and the crested leafage show that in foliage as well as in flower there is much room for the enterprising florist to experiment for useful purposes.

Kinds and colours.—Almost a revolution has been produced in the colour of the carmine and purple flowers since the introduction of Vilmorin's Red, the parent of Chiswick Red, Swanley Red, and other intense colours. This French variety was first flowered at Chiswick, and from thence has spread through the trade. By crossing with this the old, but large flowered carmines and pale purples, the brilliant hues of to-day have been evolved—intense reds or deep madders, rich magentas, such as Mr. Little's Magenta Gem, and brilliant rosy purples, like Swanley Purple or Carter's Royal Purple. But no greater novelty has been produced in the matter of colour than Holborn Gem, the lavender-blue variety, so singular and so distinct. This kind, again, is proving to be a fertile parent in the way of giving hues and colours of the most beautiful kind. Perhaps the most marked of its progeny is the fine flaked flower alluded to above. This is the result of crossing the old Village Maid with Holborn Gem, and will well serve to perpetuate the rarer, but not least beautiful, of Chinese Primroses, the flaked flowers. Indeed, there is growing up so strong a rage for deep coloured flowers that many otherwise truly fine kinds are being stigmatised as washy, a term too often applied deprecatingly to delicate hues that are truly lovely to those whose tastes have not been demoralised by rich colours. The old carmines would often fade as the blooms aged; but that fault has been overcome. There is one peculiarly pleasing kind, the flowers of which open pale pink, and deepen to a rosy pink that is very beautiful. Another has flesh or salmon-shaded flowers, such as Cannell's Princess of Wales. It is a delicate tint that is exceedingly lovely. A very distinct kind is sometimes known as marginata, because the ground colour of rosy lilac is bordered with white round each petal. This kind comes with pale green foliage and is closely allied to the pure old white, one of the very best

of all kinds, for it has a model habit, compact leafage, and a perfect head or pyramid of bloom. The true old white never shades or pinks. Some kinds that open pure white colour with age. These are good of their kind, but they are not to be confounded with the pure white forms. Some very pleasing introductions from the Continent are found in the punctated or speckled flowers. None of these are large, but Mr. Cannell has them in the best form I have yet seen—the flowers stout and bold, and in carmine, deep red, and rich purple hues. In using these as pollen parents on our larger kinds some very striking flowers will result; indeed, so many are now cross-breeding the Chinese Primrose, and in so many and various ways, that it is not possible to imagine what its future will be. Probably in four or five years the new kinds will cause us to open our eyes to some purpose. One thing which seems pretty evident is that raisers will have to give over naming their progeny, except in the case of something marvellously fine. It is one of the best properties of the Chinese Primrose that, if not cross fertilised, it will reproduce its kind from seed, but when we get 50 or perhaps 100 diverse forms in commerce no one will be able to sow stock of each, and the gardener will prefer a mixed lot of seed that he may have, as in his Cinerarias, Gloxinias, &c., as much variety as possible. The true double kinds will always be too troublesome to displace single kinds, whilst they are never one-half so effective. The semi-double kinds simply present to us a good flower spoiled. The eye of the Chinese Primrose is its light and charm. The semi-double kinds simply obliterate that and give nothing in compensation. They can not easily be fertilised, and do not seed freely. The Chinese Primrose is and will long remain our most beautiful and easiest grown winter greenhouse plant. A. D.

SALVIA SPLENDENS COMPACTA.

A COMPACT-GROWING variety of this favourite old winter-flowering plant has long been a desideratum, for, beautiful as the ordinary form of the plant is, its growth is somewhat straggling, a circumstance which considerably detracts from its merits as a pot plant. In the variety compacta, represented by the annexed woodcut, we



Salvia splendens compacta.

have a dwarf, neat plant of dense growth, yet very floriferous. It is one of the plants now being distributed by Messrs. Vilmorin & Co., of Paris.

BROMELIA PINGVIN.

THE accompanying illustration represents a huge Bromeliaceous plant, which flowered some time ago in the Botanic Garden at Brest, where it had been grown for upwards of forty years under the name of *Bromelia Karatas*; when it flowered, however, it was pronounced by M. Morren, of Liege, to be *B. pinguin* of Linnaeus, a rare cultivated plant; whereas *B. Karatas* is comparatively common, at least in this country. M. Blanchard, in an account of this remarkable plant given in the *Revue Horticole*, says: "Like all the other species belonging to this genus, it is stemless, throwing out sometimes, but rarely, a few strong stolons of about 3 ft. in length. It requires a large house to enable it to develop itself properly. In the open air, on rocks, lawns, or on the margins of an artificial stream it is very effective. Young plants of it in pots may be used for room decoration, their only rival for such a purpose being the *Pandanus*. A turfy peat suits it well, and the pots should be rather

check, any deficiency of nourishment or moisture, must seriously affect the embryo flowers; therefore, little and often should be the rule, thus keeping the soil as nearly as possible in an equable state as regards moisture. There are, however, other causes for the imperfect development of *Cyclamen* blooms, such as greenfly, which, finding its way into the folds of the half-formed corolla, feeds upon it and arrests the flow of sap, causing the blooms to become twisted. Then, again, imperfect root action, caused by a too retentive soil or a too confined atmosphere, accompanied by a too high temperature, when the days are at their shortest, will hinder the perfect development of the flowers. Good, well-formed blooms can only be secured by a course of gentle treatment from the time when the first blooms are thrown up above the foliage until all have become developed. Many err in subjecting their plants at mid-winter to a hurrying temperature. From the end of October 55° by day with a maximum of 50° at night, giving as much air as the weather will permit, are the highest artificial temperatures admissible. Just a word with

others have remained perfectly fresh for three weeks or so, having every appearance of striking, and yet in the end have damped off. The plants from which the cuttings were taken were subjected to a sort of short rest and partial drying off after flowering. They were afterwards placed in the forcing house to produce the cuttings. I ought to add that, owing to a fair amount of sun heat which we have lately had, fires were let out, so that the hotbed cooled down somewhat during the day. Very little, if any, air has been given the cuttings for fear of causing them to flag, and the propagating case has always been kept fairly moist. I should be glad to know if my treatment in every respect has been right or only partly so, and where it is that I have done wrong.

A. E.

A packet of Gloxinia seed.—In February, 1881, I purchased a packet of *Gloxinia* seed, which was sown in the third week of that month in a well-drained 6-in. pot, filled with equal parts of peat, loam, and silver sand. The soil was well watered and the seeds sown on the surface, and a little silver sand was sprinkled over them. They were then placed in bottom-heat and a piece of glass was put over the pot. Under such conditions the seed soon began to germinate, and as soon as the young plants were large enough to handle they were pricked off in a pan, and from thence into 3-in. pots. Out of the 6-in. pot I have now 124 fine bulbs, some as large as hens' eggs. I may mention that some of the seeds did not come up for three months after the first seedlings were taken out. They were all pricked off as fast as they appeared, and they have all flowered in 3-in. pots, most of them having had from four to six flowers on each plant. The first flower opened in August last year, and I have scarcely been without a *Gloxinia* bloom from that time till now, with the exception of the last week in December, when I was not able to cut one. The first of them are coming along finely for the second time; they have been repotted into 4½-in. pots after having had a good rest. The variety of colour amongst them has been very good, and some of the flowers the largest I have yet seen, and quite equal to those of any named sorts. I should have shifted them into larger-sized pots, but the leaves so covered the pot that it was almost impossible to disturb them without danger to the plants. I therefore advise all who try the raising of seedlings to put them in their flowering pot when started. I do not know who would be without a *Gloxinia* when they can be obtained so easily. If I had not any old plants by me the seedlings in question would have served me all the winter, and I think there is not a much more valuable flower in midwinter than a *Gloxinia*, either out or on the plants.—GEORGE CARPENTER, *Walton-on-Thames*.

*Bromelia Pinguin.*

small than large." The annexed illustration shows well the noble port of this plant, which, though we cannot grow it in the open air in this country, might be advantageously grown in large houses. The allied species of *B. pinguin* are *B. scaptrum*, *Commeliana*, *antiacantha*, and the handsome *B. Binotiana*, a plant which, when shown in London a few years ago with its brilliant crimson bracts in perfection, elicited general admiration.

DEFORMED CYCLAMEN BLOOMS.

THESE, let me tell your Darlington correspondent, are frequently caused through deficiency of moisture at the roots. The *Cyclamen* is a tender-rooted subject, and should never be subjected to heavy waterings, but at the same time the ball of soil should never become dust-dry at any period during its growth. When one takes into consideration the fact that generally three months elapse from the first formation of the flower-bud to its expansion, it will at once be seen that any sudden

respect to soil. Rather of the two err on the side of lightness; if a good fibrous loam is not obtainable use but little loam, letting leaf-mould predominate, and add plenty of silver sand and a little peat in small lumps.

J. CORNHILL.

BOUVARDIA CUTTINGS.

I SHOULD be greatly obliged if any of your readers who are successful in striking cuttings of the above would give me some assistance. I have been putting in cuttings since the end of February, and up to the present time out of a hundred or more about half-a-dozen appear to have struck. I placed three or four in a 3-in. pot, in fine sifted leaf mould and plenty of silver sand. The pots were plunged in Cocoa-nut fibre in a hotbed of about 75° or more, the cuttings were gently syringed once and sometimes twice every 24 hours, were kept well shaded all the time in the propagating case, and yet they have kept damping off; the leaves go black, the stems also—in some cases a day or two after being inserted, while

PLANTS FOR HANGING BASKETS.

Few plants look more ornamental in hanging baskets than Ferns, especially the drooping kinds. One of the most elegant for this kind of work is *Pteris scaberula*, which does well in a greenhouse temperature, and is of moderate growth; it has beautifully divided fronds and creeping rhizomes, that soon travel over the surface of a small basket or pot, and clothe them with the richest of drapery. *Davallia Nova-Zelandiae* is also a very choice Fern, something after the manner and character of the preceding, but rather more dense in habit and darker green. *Adiantum setulosum* is quite a gem, and requires so little soil that it will grow in a Cocoa-nut shell or small perforated Orchid pot, through the holes of either of which the young fronds find their way, and have a very pretty appearance. *Acrophorus immersus* is another Fern well adapted for baskets; it has creeping stolons that traverse the soil and send out fronds above and below, thus forming a complete globe of elegant drapery. This species, being deciduous, dies down early in the autumn; after which it should be kept rather dry till February or March, when, with a gentle watering occasionally, the roots will soon start again into growth. *Asplenium flaccidum* is remarkably graceful in a basket or

vase; the fronds are pendulous, and range from 2 ft. to 3 ft. long; like most of the *Aspleniums*, it is viviparous, besides which it seeds freely, and therefore admits of ready increase. Where a fine bold plant is required, and room can be afforded it, there is nothing equal to *Woodwardia radicans*, the fronds of which being not only broad, but long and bold, and when in an elevated position produce a very striking effect. Being a strong-growing plant, it needs plenty of root space, and all through the summer an abundant supply of water to keep it in health. *Woodwardia orientalis* is also a handsome kind, but, being of a stiffer habit, not so well adapted for baskets, unless used for the centre, with others of a drooping character around it. *W. radicans* is almost hardy, and, with slight protection, will live outdoors in any favoured spot, the most suitable covering for the crown during the winter being a few dry leaves, kept in place by a handful of bracken. *Nephrolepis tuberosa* is an exceedingly ornamental Fern, and will cover a basket quicker than any other with which I am acquainted; it sends out its long wiry stolons in all directions, and each of these forms a plant at the end, which emits a number of elegant-looking wavy fronds, that have a light and graceful appearance. The foregoing are all greenhouse sorts; among the stove species there are several, one of the neatest being *Nephrolepis pectinata*, which is a miniature form of the other. The most striking species of *Nephrolepis*, however, is *N. davallifolia*, which has fronds from three to five feet long, and so persistently drooping that they can only be seen to advantage when much elevated, as the plants may be in baskets suspended to girders or rafters or in high pockets on rockwork, one or other of which positions this Fern should always have; *Goniophlebium subauriculatum*, which has much the same habit of growth, should be treated in a similar manner. *Lygodium*, too, such as *L. scandens* and *L. palmatum*, form exceedingly graceful objects in baskets, the first named being quite a climber; under favourable conditions it grows several yards in length, and may be led about in almost any direction desired. These only need greenhouse heat. There are several of the *Lycopodium*, too, such as *Galleotti* and *uncinatum*, that make lovely basket plants, the last-named being quite unique in character, as, besides being very trailing, the colour of its fronds and leaves is of a glaucous metallic-looking green, which renders it very distinct, and gives the plant a charming and interesting appearance. All that is necessary in starting with any of the above-named is to line the baskets in which they are to be planted with moss, and then fill them with rough peat and fibry loam, in which they will do well. Ferns and Selaginellas in baskets, being so much exposed to the air, require frequent watering to keep the soil moist; but so ornamental are they that they are deserving of any attention that may be bestowed on them. S. D.

***Imantophyllum miniatum*.**—This still well deserves a place in every collection, its dark green leaves and conspicuous flowers rendering it striking even amongst the most brilliant of its associates, and it is also useful for cutting. It requires very little attention as regards treatment; the less indeed it is disturbed at the roots the better. The plants of it which we have here have not been repotted for these last five years, and the roots have become so matted that to all appearance they have no feeding material on which to exist except what is given them in the shape of liquid manure, which they receive copiously, and thus treated they have gone on flowering profusely year after year, and as long as they do so I think it best to "let well alone." ARCHD. MACKIE, *Woodlands, Darlington.*

Dwarf Cockscomb President Thins.—This is a very distinct and pleasing variety, admirably adapted for pot culture. It has been recently introduced by Messrs. Vilmorin & Co., of Paris, and gives a pleasing and novel hue of purple-crimson, which we have not previously seen in the Cockscomb. It is of dwarf growth, and the combs very fine, therefore well adapted for exhibition purposes. —R. D.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

A LARGE and brilliant bouquet, all yellow and golden, is made of *Berberis*, yellow *Wallflower*, yellow *Polyanthus*, *Kerria japonica* and *Jonquils*, with some of the bright Daisy-like blooms of *Doronicum caucasicum*, and foliage of Golden *Valerian*. *Myosotis dissitiflora*, with the young growth of *Woodruff* gathered in tufts, combine to make a charming table bouquet in white china. The fresh lively green of the young *Woodruff* agrees well with the colour of the *Forget-me-not*, and the two together in the clean white porcelain give a pleasant impression of the bright young growths of spring. In another table bouquet, one or two clusters of *Pulmonaria virginica*, with its fine broad leaves, rise from a group of double white *Wood Anemone*. Wild Marsh *Marigolds* fill a large bowl on a hall table. A silver cup, broad and shallow, has *Stephanotis* and *Gardenia*; the former, for its better preservation, kept low in the water. A twig or two of *Portugal Laurel* makes suitable foliage, the leaves not too large, but of the darkest green, and most brilliant polish. *Cydonia japonica*, pink and rosy-scarlet, now well clothed with its own foliage, is beautiful in cream-coloured ware. A tall glass holds wavy shoots of *Dielytra spectabilis*, flowered indoors. Alpine *Auriculas* in pots are grouped in large china bowls well mossed over—purple and lilac in one bowl, and yellow and golden bronze in another.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

***Coprosma Baueriana variegata*.**—This is an evergreen greenhouse shrub with a bushy trailing habit of growth and foliage richly variegated—bright green and cream colour. It is harder than most kinds of summer bedding plants, and well deserves a foremost place amongst them. It has not yet become very popular, probably owing to the difficulty supposed to exist with regard to its propagation, a difficulty soon overcome when the cuttings are made of new growths and inserted in saucers of sand, which should be kept saturated with water and placed in a close moist temperature of 75°. Under such conditions they root in less than a week, when they require potting in sandy loam and replacing in heat till the roots have got hold of the new soil, when ordinary cold frame treatment suits them perfectly. They can be planted out with safety any time after the middle of May, the soil in which they do best being moderately rich sandy loam. Owing to the distinctness of the variegation and the ease with which the growth is regulated, this New Zealand shrub is one of the best plants we have for forming divisional lines in beds that are to be planted with dark coloured foliaged or flowering plants, and it is equally suitable for edgings to large beds or to encircle lines of dark *Lobelias*, *Ageratums*, or *Violas*, and it has no rival when used as a central plant in small panels of dark-leaved *Alternantheras*.

Spring flowers.—The present may, indeed be termed a floral spring, for never in my recollection has there been such a continuous display, lasting ever since the Snowdrop season to the present time. *Wallflowers*, *Primroses*, *Hyalcinths*, and *Tulips* have been most abundant; such a season must increase the demand for spring flowers, and in order to meet it (whilst these are yet in flower) notes should be made of the most popular kinds in order that their propagation may be undertaken at the proper season, and the approved varieties of bulbs ordered early. *Wallflowers*, *Primroses*, and *Polyanthuses* may be sown now, and good varieties of the two last should be increased by division as soon as they have done flowering. New plots of *Viols* should be made as soon as runners can be had; from these early plantings good flowers are frequently produced in quantity throughout the autumn and

winter. The *Czar* and *Victoria Regina* are the best winter bloomers, simply because they are the hardest. In order the better to insure a long succession of flowers in spring different aspects should be chosen. We plant a few at the foot of the fruit tree walls in every aspect; from the south we gathered quantities of blooms in January, and from the north and east aspects they have not yet done flowering. Lily of the Valley is amenable to the same mode of culture, and the season of flowering is also proportionately extended. Beds of this Lily should now be top-dressed, and new beds made by dividing the roots that have been forced. Plant single crowns in lines 9 in. apart and 3 in. asunder in the line; press them firmly into the soil, and then mulch with cow manure, which should remain on the whole of the summer; next season some good flowers may be expected, and the following one they will be as fine as those from imported crowns.

General work.—This, to a large extent, still consists in the preparation of plants for summer arrangements. We are at present busy making up hotbeds, consisting of stable litter and lawn mowings, for *Alternantheras*; putting in cuttings of *Mesembryanthemum cordifolium variegatum* in boxes, which are placed over the pipes in vineries to strike; pricking off seedling *Tagetes*, *Pyrethrums*, *Zinnias*, *Asters*, and *Stocks*, also potting off *Coleuses*, *Iresines*, *Heliotropes*, and *Petunias*, and planting out *Lobelias* and *Verbenas* in turf pits, and *Calceolarias* and *Violas* in the open air. *Dahlias* and sub-tropical plants require the extra space thus gained, and some of these need larger pots, our rule being never to let them get root-bound, as that cripples the growth of the plants for the whole season. The outside operations now are principally mowing and sweeping; preparing beds and borders for planting; pruning and tying up, or nailing in climbers; sowing hardy annuals, and making successional sowings of Sweet Peas, *Mignonette*, and *Virginian Stocks*; weeding, and in mossy places, salting walks and roads.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

ONCE more we have a liberal supply of flowers from hardy shrubs and trees that cannot fail to be acceptable as well as useful in a cut-state. Of these we are now using sprays of the single white *Cherry* in association with those of the *Siberian Crab*. I find these group well together and make a pleasing contrast. Another useful early flowering plant is the double blossomed white *Peach*, which looks exceedingly well against a background of common *Laurel*, as seen in the shrubberies here. In a cut state it will look well with the golden yellow *Kerria japonica*. The foliage of *Berberis Aquifolium* would do nicely as a background for an arrangement of this kind. *Pyrus japonica* and its white variety make a nice change. When using these flowers secure a few fresh green growths also to arrange with them. The early flowering hardy *Rhododendrons* are always valuable. Like the *Pyrus*, these arrange best by themselves. I find three or four trusses of two distinct colours of these hardy American plants to group well together for a sideboard decoration. Besides all these there are *Laurustinus*, *Ribes sanguineum* and its white form, and other shrubs which, for cut purposes, ought to be more valued than they are; and where a supply can be thus got, as at the present time, from the open air, less pressure should be put upon that from the houses. Of hardy bulbous plants, the *Bluebells* (*Scilla campanulata* and *patula*) are valuable aids in floral decorations. A few spikes look pretty arranged with *Hoteia japonica*, or in a dinner-table arrangement they associate well with the *Amazonian Lily*. Of plants easily grown under ordinary greenhouse treatment, *Choisya ternata* is a valuable shrub, as are also the *Eriostemonas* (*E. linearifolium* in particular). We have these in flower now, the latter plant being in that condition nearly all the winter. Both of these shrubs are most valuable for bouquet work. A few pots of *Musk* will be an agreeable

change in the house where this plant has been forwarded; so also will early Stocks and small plants of Heliotropes and forced Pinks, not forgetting Mignonette from autumn-sown seed.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Stephanotis and Gardenias.—Plants of these two fragrant white flowers started in a brisk heat some time back will now come rapidly forward. The Gardenia is a sun-requiring plant as however much heat it receives the flowers do not make much progress until the sun gets some power. Use every means to keep down scale and mealy bug which will now increase apace. If the growth of the Stephanotis was well ripened last autumn, the plants will generally show flower freely on the young shoots as soon as formed. Do not use too much atmospheric moisture, as where subjected to an over-humid atmosphere, the bloom is usually proportionately deficient.

Perpetual flowering Carnations.—Where there is a well-managed stock of these, the principal lot should now be fast pushing up their flower-stems, for, although for their perpetual blooming habit with a sufficient number of plants their flowers may be had all the year round, still they come much finer and in greater abundance during the spring and summer. The plants will be much benefited by the application of manure water once a week. This will not only assist the earliest flowers, but also the successional bloom. A little soot added to the manure water will be found an advantage, as besides its manurial properties, it tends to banish worms, and there is no insect that appears to like depositing its eggs on plants that have the odour of soot about them.

Tuberous Begonias.—If not already started, the old bulbs of these should at once be set to work, repotting them in good, fresh soil, and giving root-room proportionate to the size of the bulbs, for though they may be considerably assisted by liquid stimulants, yet with free-growing subjects like these Begonias, that form large heads in little time, a good amount of space is requisite for the roots; if too much confined the amount of growth and flowers forthcoming will be limited.

Tender annuals.—Even in gardens where plants of a permanent character are made the principal feature some of the handsomest annuals suitable for pot culture may be grown with advantage. Such things as Balsams, Globe Amaranthus, Rhodanthe Manglei, Celosia pyramidalis, and the old-fashioned Cockscomb, when well managed, are amongst the most effective plants that can be grown for summer decoration, and when in flower they can be placed about in conservatories and similar structures where it would not be expedient to set plants of more value. The feathery plumes of the Celosia are unequalled as regards effect when grouped with plants of more bushy habit. The principal matter to be kept in view in the cultivation of these things is to give them sufficient room and keep them close to the glass from the time the seed germinates until they are in bloom. It is not advisable to place the seeds in too much heat; an intermediate temperature, such as that obtainable from a moderate hot-bed composed of leaves and manure in about equal quantities, answers best. Pits or frames now occupied with bedding plants will in most places be at liberty in a short time, and will be available for them in their subsequent stages.

Linum trigynum.—Where yellow flowers are prized, combined with a plant that occupies little room, this old-fashioned Flax is deserving of cultivation. If seeds of it are sown at once they will make nice blooming plants before autumn. It is somewhat liable to the attacks of red spider; consequently a constant use of the syringe will be necessary, dewing the plants over every day. 6-in. or 7-in. pots are large enough, stopping once or twice to induce a bushy condition.

Lisianthus Russellianus.—This deserves a place wherever there is the means of giving it intermediate warmth, as so treated it does much better than where it receives more heat. The seed should be sown on the surface of the soil in a pot, covering it little or none, with the exception of a piece of glass, which should be placed over the top of the pot. The latter should be set in a pan containing a little water, that will be absorbed by the soil, thereby obviating the necessity of watering overhead, which displaces the seeds and retards their vegetating. It is biennial in habit, plants raised from seed sown now blooming in May, June, or July the ensuing year.

Todeas and Trichomanes.—Many who have attempted the cultivation of these elegant Ferns have failed through keeping them too warm. No heat is required except simply to keep out frost. They require to be confined within a glazed case, for though they will live exposed to the atmosphere of an ordinary cool fernery, yet they do not get on so well as if less air was given them. Any that need more root room should be repotted, being careful not to disturb the roots more than is unavoidable, as now when growth is commencing any mutilation of them will interfere with the development of the young fronds. Keep the soil well supplied with water, as the least approach to dryness is most injurious at all times, but much more so during the early stages of growth than at any other time. In giving water be careful not to wet the plants overhead, as if this is not avoided they always have a brown, shabby appearance.

Lygodium scandens.—Where large stands or baskets are required to be filled with flowers this climbing Fern should be grown in sufficient quantity to admit of its being used freely, as its elegant long sprays have a beautiful effect when entwined amongst flowers and other green foliage.

FRUIT GARDEN.

W. COLEMAN, EASTNOR CASTLE.

Vines.—By this time the Vines in the latest houses will be fit for stopping if the operation has not already been performed. Syringe well twice a day until the branches become prominent, encourage a short-jointed, sturdy growth by ventilating freely through the early part of the day, close with brisk sun heat to save firing, and allow the temperature to range about 60° at night. If the inside borders have not been watered since the Vines broke, now will be a good time to give them a thorough watering—if gross, with pure water; if weak, with liquid or guano added—which will carry them on until after the fruit is set, when they may be again watered and mulched with short manure. Pay regular attention to daily details in succession houses, and on no account let the thinning of the berries get behind, otherwise a tedious operation of this kind, which requires great patience, is sure to be hurried over and imperfectly performed. Fertilise Muscats now in flower, also Black Morocco and other shy-setting kinds, using Hamburgh pollen if it can be obtained or has been preserved in a dry, warm place. A camel's-hair brush should be used in preference to drawing the hand down the bunches, and the atmosphere of the house should be dry and warm when the operation is performed.

Examine the foliage in out-of-the-way corners in the early house, and if a suspicious-looking leaf is found, either sponge at once with weak Tobacco or soap water, or apply the usual remedy to the pipes for the destruction of spider. At the same time look well to inside borders, and if found dry, a condition under which spider makes rapid strides, water freely with guano water and mulch with short stable manure which has been well worked as for a Mushroom bed. Damp this frequently to keep the atmosphere charged with moisture, maintain a low night temperature by giving front air, and most important of all, see that the Vines are not carrying more fruit than they are likely to swell up and finish. Many people overcrop and suffer, but we never hear the grower

or the consumer complain when a moderate crop colours and ripens well.

Peaches and Nectarines.—The most trying and critical period in Peach culture is the stoning process, which lasts about five weeks, and so great is the strain upon the trees that during that time no outward change is perceptible in the size of the fruit, but good work is going on within, and as soon as the old lime rubble, so often recommended for Peach borders, has been converted into bony foundations for the luscious pulp, the last swelling for ripening will be very rapid, and forcing may be pushed on under a much higher temperature than would be safe through any of the preceding stages, but it must be borne in mind that hard forcing is not recommended, as trees placed under high pressure are short-lived, and the fruit they produce is generally small, flavourless, and deficient in colour. To have the fruit fine and well coloured, low temperatures, ranging from 45° at the commencement to 58° at the finish, with a free circulation of air on all favourable occasions, are points which must have attention, and where they are neglected the mediocre fruit so frequently met with will be the result. Having kept the trees regularly syringed and ventilated to prevent fluctuations through the stoning period, the first sign of a move forward will denote the time for the final thinning, an operation upon which many fruit growers disagree, one man asserting that his trees carry twelve fruit to a foot, while others, myself amongst them, find one good Peach to every square foot of trellis covered with foliage is a heavy crop for trees to carry for a number of years in succession. Pinch the points out of all growths which will be removed after the crop is gathered to throw size into the fruit. Tie down the young shoots where a free and easy style of growth has been adopted during the stoning process, and elevate the fruit well above the foliage, point upwards by the use of short pieces of lath placed across the trellis. Give another watering to inside borders, and much well to keep the surface roots moist and active during the time the fruit is ripening. If soft water cannot be obtained for syringing, water free from lime should be used, otherwise the sediment will mark the fruit and detract from its appearance when ripe. Follow up the usual routine in succession houses and keep everything in order by the timely performance of the various operations now crowding upon each other. Disbud, tie down the shoots, and thin the fruit in late houses. Use the syringe freely all round, and give all inside borders copious waterings with water at the mean temperature of the houses in which the trees are growing.

Figs.—Favoured by an unusually fine season, the most forward fruit on pot trees will soon begin to ripen, when watering may be gradually reduced, but at no time must the trees feel the want of water, neither must syringing be entirely discontinued, otherwise spider will speedily follow the check and give much after trouble. From this time forward the house may be freely ventilated in favourable weather, and the temperature may range from 60° to 65° at night and 70° to 75° by day with a rise to 80° after closing on bright afternoons. Maintain a circulation of warm air through the night. Keep the young growths neatly tied down to give the ripening fruit the full benefit of light and solar heat, and as ripe Figs can be kept for a few days laid on a hair-sieve in a dry room, make a point of gathering all that are ready at short intervals, and immediately give a good watering with tepid liquid, and syringe copiously to help forward the advancing crop. In succession houses where the trees are planted out, pinch or remove the side shoots and tie down leaders to prevent overcrowding, but do not stop the latter until they have reached the extremity of the trellis, as the Fig, unlike many other kinds of fruit tree, keeps producing a succession as long as it continues growing. In some parts of the tree stopping is quite necessary to prevent the fruit from being too much shaded by the foliage, but stopping should not be practised after the turn of the summer or when the trees are

weakened by forcing and unable to push young growths from the eye nearest the point at which the shoot has been stopped. Trees in late houses may now be well syringed and watered to help the crop along; ventilate freely to insure a firm, short-jointed growth, and close early with sun-heat to save firing through the night. Examine spring-struck cuttings and shift them on as they require more pot room. If kept in or over bottom-heat with their heads near the glass, they may be got into 12-in. pots by the autumn and strong enough to bear fruit next year.

Strawberries.—If these plants still occupy shelves in Peach houses and vineries, lose no time in getting them removed to safer quarters, and thoroughly cleanse the houses or the parts in which they are likely to have left the nucleus of a colony of spider before it has time to extend to the permanent and more valuable occupants, where it will do more mischief than the Strawberries are worth. If a hot-water pit, in which the plants can be placed near the glass, is available, this will be found the best place for their reception, as there they can be copiously syringed and shut up early with sun heat to swell the fruit, and the pots being less exposed to bright sun and draughts of air, feeding can be more effectually and economically carried on than when elevated on shelves in lofty houses. By this time the stock will have been reduced to the late kinds occupying 7-in. and 8-in. pots, and as these will now be making an abundance of foliage and throwing up their flower-scapes, see that they have plenty of air and water and syringe well when the pit is closed for the day. If the plants have not been disturbed since they were stored away in the autumn and space is available, a general turn over and partial replunging, giving the best more room by turning out the weakest to form a later batch by themselves, the crop will well repay the time and trouble expended upon them. Let the crocks be examined as the work proceeds, and correct any derangement that may have been caused by worms; also ram the soil well back to the sides of the pots to insure the even passage of water, and top-dress the surface with a mixture of rich loam and rotten manure. To secure extra fine fruit, thin off weak blossoms before they open, fertilise those left when ready, and tie up to light sticks when they begin to swell.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

Of Celery, which is always useful and enjoyable when well blanched and well grown, our early sowing now pricked out in boxes for second or for main crop is well above the ground; for the last crop of all we sow in the middle of this month; this proves most useful for soups in early spring. Early Broccoli, such as Veitch's Autumn Giant, good old Walcheren, and White Cape should, if not already done, be sown at once—under glass if possible. To sow seeds outside, even this fine season, is not a good system; the young seedlings do not grow and flourish in the same manner as if raised under glass, and weakly, crippled plants are not the thing if success is a consideration. Defer sowing the later kinds until the 1st of May. Scarlet Runners I grow in miniature trenches, the same as Peas; the trenches should be taken out at once, well manured, and dug deeply, breaking the soil well as the work proceeds. We then put an inch deep of burnt refuse on the top of the broken soil, and wait until the second week in May; then with a cultivator we mix the ashes and the soil in the trenches, draw a shallow drill down the middle, and in this plant the Beans, in single rows, earthing them up, when large enough, until the ground is level before staking. This method of planting Scarlet Runners makes them to a great extent independent of dry, hot weather. Peas that are sufficiently grown should be staked after slightly earthing them up; and here I must remark that Peas are very much benefited by staking; it keeps that worst of all enemies—the surface wind—

bay. I consider wind far more dangerous than frost for all outside Peas. Our earliest Pea, Ring-leader, is showing flower, but I have Minimum in pod, grown in boxes under glass, no fire-heat being used. While speaking of Peas I must say that in last week's Calendar I described Stratagem and Pride of the Market as 6-ft. Peas, meaning Telegraph and Telephone. We are just finishing planting Potatoes, for which the land is in fine condition and the weather perfectly glorious; therefore, if these two important matters have anything to do with raising good crops, I venture to prophesy that success is certain. We begin this day (April 8) to cut our spring Cabbages; they are not large, but fairly solid, and good in flavour. Hicks' and Black-seeded Brown Cos Lettuces, both good winter varieties, we have been cutting for use all winter, and just now we have a very good supply. I like Hicks' Hardy, the best so far as colour goes. Tomatoes grow apace just now. Keep the side shoots thin, and supply them with water abundantly, but nothing more at present. When a good crop is well set, treat them to a little manure water, but not too much—1 qt. of manure water to 3 galls. of clean soft water. French Beans should now be sown in small pots, and planted out under south walls or in warm corners for an early supply outside.

NOTES OF THE WEEK.

AUCUBA BERRIES IN LONDON.—Among the plants that fight best with London smut are the various forms of the Aucuba; their leathery, smooth leaves seem to let the soot fall off. At Hampstead, in the gardens of Golders' Hill, bushes of the common Aucuba are quite brilliant with berries, which look extremely pretty in the bright sun.

NARCISST AT BELVOIR.—The various Narcissi have been and are still strikingly handsome. N. Emperor and Empress are conspicuously attractive. Though less massive the delicate and refined varieties that belong to the medio-coronatus group, of which N. incomparabilis is an example, are eminently pleasing and satisfactory. Altogether they give a feature to the spring garden that should not be omitted.—W. I.

PANSIES FROM THE NORTH.—Seeing the large and many coloured Pansies from W. Hooper, of Bath, at Kensington on Tuesday, one naturally connected their size and freshness with those western hills where flowers grow so happily. A basket of very large Pansies from the Rectory at Dimsdale-on-Tees, however, corrects the impression and shows the wide range of country over which these bold and richly coloured flowers bloom early in the year.

CEREUS MALLISONI.—This beautiful Cactus, which is now flowering in the collection of succulent plants at Kew, is one of the most valuable of the whole tribe of Cacti, as its flowers are large and showy, and the plant never fails to produce a numerous crop of flowers, which open in succession at intervals of a few days. The Kew plant is grafted on one of the slender stemmed and consequently pendulous-growing Cacti, which adds to its beauty. It is of easy culture in a warm, dry stove.

DOUBLE PRIMROSES ON THE ROCK GARDEN.—Blessed is the man who invented rockeries! The double yellow Primroses were nearly all killed down in the open border last winter, but the few survivors were carefully divided and planted in shady nooks of the rockwork. They have been blooming in a quiet way since February, and are now magnificent. The other Primroses have also come much larger and fresher than in the borders. Keen frosts on Saturday and Sunday nights have cut off all Rhododendron blooms.—M. E. C., *Ayr*.

CAMELLIAS OUT OF DOORS NEAR LONDON.—Many of us know how hardy the Camellia is, and how it may survive where the Laurel perishes. We have, however, not before the present year noticed it in good bloom close to London. In Mr. Spencer Wells' garden at Hampstead a bush out three years has now forty flowers and buds on it. Perhaps the unusually gentle spring has favoured the flowering, but as regards hardiness the plants seem to fear nothing.

MUSA ROSACEA.—The chief distinguishing character of this species from others of this noble genus are the bracts that subtend the flowers; they are of a beautiful rosy pink colour, quite distinct from those of any other cultivated kind. When seen just unfolding these delicately coloured bracts the plant has a fine effect in combination with its stately growth. It is now in flower at Pendell Court. Another beautiful flowered Musa (*M. coccinea*) will shortly be in flower at Kew. It is remarkable for the brilliant scarlet hue of its floral bracts.

DOG'S-TOOTH VIOLETS IN GRASS.—This year some of our flowers go out of bloom a little before their usual time. We rather regretted to see a nice batch of the Dog's-tooth Violet in seed the other day growing in the Grass, thinking the flowers must have looked charming. But standing over the spot and looking down on the foliage, we were charmed to see how well this looked on the Grass from which it sprang. The Dog's-tooth Violet would appear to be one of the plants that do well in the Grass, if properly placed and not destroyed by the mower. The mower must be looked after for the future.

VERONICA HULKEANA.—This New Zealand Speedwell, when well grown, is one of the most beautiful of greenhouse plants, very fine being able to compare with it as regards delicacy of tint. It is a good deal like some of the hardy Speedwells, having tall branching clusters of small blossoms of a soft pale mauve. It is as valuable in a cut state as in the shape of a pot plant, and, being easily cultivated, makes it all the more desirable. It is somewhat surprising that such a lovely plant as this is not more generally met with in nurseries than it is. It is now in flower in the conservatory (No. 4) at Kew.

THE GRAPE PEAR (Amelanchier Botryapium).—Whenever a selection of shrubs or trees is made for a garden, this in all cases should be included, for there are few more beautiful trees that flower in early spring. For the past fortnight or three weeks the trees of it in the parks and gardens about London have been literally sheets of white blossom. It differs, too, from other trees in flower at this season by its peculiarly graceful twiggy growth, which is slightly pendulous and always spreading. There are several kinds of Amelanchier in cultivation, but this is no doubt the best, and in reality represents all the beauty of the others. It reaches 30 ft. high in North America, its native country.

NEVUSIA ALABAMENSIS.—This new shrub, now in flower against one of the open walls at Kew, somewhat disappoints us, for, judging by the dried specimens of it which Mr. Saut sent us from his nursery in Washington, we thought that it would prove to be very ornamental. The colour of the feathery clusters of flowers is a yellowish green, and certainly not attractive, but the flowers are produced plentifully, which compensates a little for their want of colour. Botanically, it is no doubt highly interesting, but from a garden point of view some of the Spiræas are much superior to it, particularly *S. mollis*, now loaded with white blossoms.

FINE SPECIMEN OF THE COFFEE PLANT.—In a general sense the Coffee shrub is not in-

change in the house where this plant has been forwarded; so also will early Stocks and small plants of Heliotropes and forced Pinks, not forgetting Mignonette from autumn-sown seed.

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FRUIT GARDEN.

W. COLEMAN, EASTON CASTLE.

Vines.—By this time the Vines in the latest houses will be fit for stopping if the operation has not already been performed. Syringe well twice a day until the branches become prominent, encourage a short-jointed, sturdy growth by ventilating freely through the early part of the day, close with brisk sun heat to save firing, and allow the temperature to range about 60° at night. If the inside borders have not been watered since the Vines broke, now will be a good time to give them a thorough watering—if gross, with pure water; if weak, with liquid or guano added—which will carry them on until after the fruit is set, when they may be again watered and mulched with short manure. Pay regular attention to daily details in succession houses, and on no account let the thinning of the berries get behind, otherwise a tedious operation of this kind, which requires great patience, is sure to be hurried over and imperfectly performed. Fertilise Muscats now in flower, also Black Morocco and other shy-setting kinds, using Hamburg pollen if it can be obtained or has been preserved in a dry, warm place. A camel's-hair brush should be used in preference to drawing the hand down the bunches, and the atmosphere of the house should be dry and warm when the operation is performed.

Examine the foliage in out-of-the-way corners in the early house, and if a suspicious-looking leaf is found, either sponge at once with weak Tobacco or soap water, or apply the usual remedy to the pipes for the destruction of spider. At the same time look well to inside borders, and if found dry, a condition under which spider makes rapid strides, water freely with guano water and mulch with short stable manure which has been well worked as for a Mushroom bed. Damp this frequently to keep the atmosphere charged with moisture, maintain a low night temperature by giving front air, and most important of all, see that the Vines are not carrying more fruit than they are likely to swell up and finish. Many people overcrop and suffer, but we never hear the grower

or the consumer complain when a moderate crop colours and ripens well.

Peaches and Nectarines.—The most trying and critical period in Peach culture is the stoning process, which lasts about five weeks, and so great is the strain upon the trees that during that time no outward change is perceptible in the size of the fruit, but good work is going on within, and as soon as the old lime rubble, so often recommended for Peach borders, has been converted into bony foundations for the luscious pulp, the last swelling for ripening will be very rapid, and forcing may be pushed on under a much higher temperature than would be safe through any of the preceding stages, but it must be borne in mind that hard forcing is not recommended, as trees placed under high pressure are short-lived, and the fruit they produce is generally small, flavourless, and deficient in colour. To have the fruit fine and well coloured, low temperatures, ranging from 45° at the commencement to 58° at the finish, with a free circulation of air on all favourable occasions, are points which must have attention, and where they are neglected the mediocre fruit so frequently met with will be the result. Having kept the trees regularly syringed and ventilated to prevent fluctuations through the stoning period, the first sign of a move forward will denote the time for the final thinning, an operation upon which many fruit growers disagree, one man asserting that his trees carry twelve fruit to a foot, while others, myself amongst them, find one good Peach to every square foot of trellis covered with foliage is a heavy crop for trees to carry for a number of years in succession. Pinch the points out of all growths which will be removed after the crop is gathered to throw size into the fruit. Tie down the young shoots where a free and easy style of growth has been adopted during the stoning process, and elevate the fruit well above the foliage, point upwards by the use of short pieces of lath placed across the trellis. Give another watering to inside borders, and mulch well to keep the surface roots moist and active during the time the fruit is ripening. If soft water cannot be obtained for syringing, water free from lime should be used, otherwise the sediment will mark the fruit and detract from its appearance when ripe. Follow up the usual routine in succession houses and keep everything in order by the timely performance of the various operations now crowding upon each other. Disbud, tie down the shoots, and thin the fruit in late houses. Use the syringe freely all round, and give all inside borders copious waterings with water at the mean temperature of the houses in which the trees are growing.

Figs.—Favoured by an unusually fine season, the most forward fruit on pot trees will soon begin to ripen, when watering may be gradually reduced, but at no time must the trees feel the want of water, neither must syringing be entirely discontinued, otherwise spider will speedily follow the check and give much after trouble. From this time forward the house may be freely ventilated in favourable weather, and the temperature may range from 60° to 65° at night and 70° to 75° by day with a rise to 80° after closing on bright afternoons. Maintain a circulation of warm air through the night. Keep the young growths neatly tied down to give the ripening fruit the full benefit of light and solar heat, and as ripe Figs can be kept for a few days laid on a hair-sieve in a dry room, make a point of gathering all that are ready at short intervals, and immediately give a good watering with tepid liquid, and syringe copiously to help forward the advancing crop. In succession houses where the trees are planted out, pinch or remove the side shoots and tie down leaders to prevent overcrowding, but do not stop the latter until they have reached the extremity of the trellis, as the Fig, unlike many other kinds of fruit tree, keeps producing a succession as long as it continues growing. In some parts of the tree stopping is quite necessary to prevent the fruit from being too much shaded by the foliage, but stopping should not be practised after the turn of the summer or when the trees are

weakened by forcing and unable to push young growths from the eye nearest the point at which the shoot has been stopped. Trees in late houses may now be well syringed and watered to help the crop along; ventilate freely to insure a firm, short-jointed growth, and close early with sun-heat to save firing through the night. Examine spring-struck cuttings and shift them on as they require more pot room. If kept in or over bottom-heat with their heads near the glass, they may be got into 12-in. pots by the autumn and strong enough to bear fruit next year.

Strawberries.—If these plants still occupy shelves in Peach houses and vineries, lose no time in getting them removed to safer quarters, and thoroughly cleanse the houses or the parts in which they are likely to have left the nucleus of colony of spider before it has time to extend to the permanent and more valuable occupants, and where it will do more mischief than the Strawberries are worth. If a hot-water pit, in which the plants can be placed near the glass, is available, this will be found the best place for their reception, as there they can be copiously syringed and shut up early with sun heat to swell the fruit, and the pots being less exposed to bright sun and draughts of air, feeding can be more effectively and economically carried on than when elevated on shelves in lofty houses. By this time the stock will have been reduced to the late kinds occupying 7-in. and 8-in. pots, and as these will now be making an abundance of foliage and throwing up their flower-scapes, see that they have plenty of air and water and syringe well when the pit is closed for the day. If the plants have not been disturbed since they were stored away in the autumn and space is available, a general turn over and partial replugging, giving the best more room by turning out the weakest to form a later batch by themselves, the crop will well repay the time and trouble expended upon them. Let the crows be examined as the work proceeds, and correct any derangement that may have been caused by worms; also ram the soil well back to the sides of the pots to insure the even passage of water, and top-dress the surface with a mixture of rich loam and rotten manure. To secure extra fine fruit, thin off weak blossoms before they open, fertilise those left when ready, and tie up to light sticks when they begin to swell.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

Of Celery, which is always useful and enjoyable when well blanched and well grown, our early sowing now picked out in boxes for second or for main crop is well above the ground; for the last crop of all we sow in the middle of this month; this proves most useful for soups in early spring. Early Broccoli, such as Veitch's Autumn Giant, good old Walcheren, and White Cape should, if not already done, be sown at once—under glass if possible. To sow seeds outside, even this fine season, is not a good system; the young seedlings do not grow and flourish in the same manner as if raised under glass, and weakly, crippled plants are not the thing if success is a consideration. Defer sowing the later kinds until the 1st of May. Scarlet Runners I grow in miniature trenches, the same as Peas; the trenches should be taken out at once, well manured, and dug deeply, breaking the soil well as the work proceeds. We then put an inch deep of burnt refuse on the top of the broken soil, and wait until the second week in May; then with a cultivator we mix the ashes and the soil in the trenches, draw a shallow drill down the middle, and in this plant the Beans in single rows, earthing them up, when large enough, until the ground is level before staking. This method of planting Scarlet Runners makes them to a great extent independent of dry, hot weather. Peas that are sufficiently grown should be staked after slightly earthing them up; and here I must remark that Peas are very much benefited by staking; it keeps that worst of all enemies—the surface wind—

bay. I consider wind far more dangerous than frost for all outside Peas. Our earliest Pea, Ring-leader, is showing flower, but I have Minimum in pod, grown in boxes under glass, no fire-heat being used. While speaking of Peas I must say that in last week's Calendar I described Stratagem and Pride of the Market as 6-ft. Peas, meaning Telegraph and Telephone. We are just finishing planting Potatoes, for which the land is in fine condition and the weather perfectly glorious; therefore, if these two important matters have anything to do with raising good crops, I venture to prophesy that success is certain. We begin this day (April 8) to cut our spring Cabbages; they are not large, but fairly solid, and good in flavour. Hicks' and Black-seeded Brown Cos Lettuces, both good winter varieties, we have been cutting for use all winter, and just now we have a very good supply. I like Hicks' Hardy, the best so far as colour goes. Tomatoes grow apace just now. Keep the side shoots thin, and supply them with water abundantly, but nothing more at present. When a good crop is well set, treat them to a little manure water, but not too much—1 qt. of manure water to 3 galls. of clean soft water. French Beans should now be sown in small pots, and planted out under south walls or in warm corners for an early supply outside.

NOTES OF THE WEEK.

AUCUBA BERRIES IN LONDON.—Among the plants that fight best with London smut are the various forms of the Aucuba; and their leathery, smooth leaves seem to let the soot fall off. At Hampstead, in the gardens of Golders' Hill, bushes of the common Aucuba are quite brilliant with berries, which look extremely pretty in the bright sun.

NARCISSI AT BELVOIR.—The various Narcissi have been and are still strikingly handsome. N. Emperor and Empress are conspicuously attractive. Though less massive the delicate and refined varieties that belong to the medio-coronatus group, of which N. incomparabilis is an example, are eminently pleasing and satisfactory. Altogether they give a feature to the spring garden that should not be omitted.—W. I.

PANSIES FROM THE NORTH.—Seeing the large and many coloured Pansies from W. Hooper, of Bath, at Kensington on Tuesday, one naturally connected their size and freshness with those western hills where flowers grow so happily. A basket of very large Pansies from the Rectory at Dimsdale-on-Tees, however, corrects the impression and shows the wide range of country over which these bold and richly coloured flowers bloom early in the year.

CEREUS MALLISONT.—This beautiful Cactus, which is now flowering in the collection of succulent plants at Kew, is one of the most valuable of the whole tribe of Cacti, as its flowers are large and showy, and the plant never fails to produce a numerous crop of flowers, which open in succession at intervals of a few days. The Kew plant is grafted on one of the slender stemmed and consequently pendulous-growing Cacti, which adds to its beauty. It is of easy culture in a warm, dry stove.

DOUBLE PRIMROSES ON THE ROCK GARDEN.—Blessed is the man who invented rockeries! The double yellow Primroses were nearly all killed down in the open border last winter, but the few survivors were carefully divided and planted in shady nooks of the rockwork. They have been blooming in a quiet way since February, and are now magnificent. The other Primroses have also come much larger and fresher than in the borders. Keen frosts on Saturday and Sunday nights have cut off all Rhododendron blooms.—M. E. C. *Ayr.*

CAMELLIAS OUT OF DOORS NEAR LONDON.

Many of us know how hardy the Camellia is, and how it may survive where the Laurel perishes. We have, however, not before the present year noticed it in good bloom close to London. In Mr. Spencer Wells' garden at Hampstead a bush out three years has now forty flowers and buds on it. Perhaps the unusually gentle spring has favoured the flowering, but as regards hardiness the plants seem to fear nothing.

MUSA ROSACEA.—The chief distinguishing character of this species from others of this noble genus are the bracts that subtend the flowers; they are of a beautiful rosy pink colour, quite distinct from those of any other cultivated kind. When seen just unfolding these delicately coloured bracts the plant has a fine effect in combination with its stately growth. It is now in flower at Pendell Court. Another beautiful flowered Musa (*M. coccinea*) will shortly be in flower at Kew. It is remarkable for the brilliant scarlet hue of its floral bracts.

DOG'S-TOOTH VIOLETS IN GRASS.—This year some of our flowers go out of bloom a little before their usual time. We rather regretted to see a nice batch of the Dog's-tooth Violet in seed the other day growing in the Grass, thinking the flowers must have looked charming. But standing over the spot and looking down on the foliage, we were charmed to see how well this looked on the Grass from which it sprang. The Dog's-tooth Violet would appear to be one of the plants that do well in the Grass, if properly placed and not destroyed by the mower. The mower must be looked after for the future.

VERONICA HULKEANA.—This New Zealand Speedwell, when well grown, is one of the most beautiful of greenhouse plants, few being able to compare with it as regards delicacy of tint. It is a good deal like some of the hardy Speedwells, having tall branching clusters of small blossoms of a soft pale mauve. It is as valuable in a cut state as in the shape of a pot plant, and, being easily cultivated, makes it all the more desirable. It is somewhat surprising that such a lovely plant as this is not more generally met with in nurseries than it is. It is now in flower in the conservatory (No. 4) at Kew.

THE GRAPE PEAR (Amelanchier Botryapium).—Whenever a selection of shrubs or trees is made for a garden, this in all cases should be included, for there are few more beautiful trees that flower in early spring. For the past fortnight or three weeks the trees of it in the parks and gardens about London have been literally sheets of white blossom. It differs, too, from other trees in flower at this season by its peculiarly graceful twiggy growth, which is slightly pendulous and always spreading. There are several kinds of Amelanchier in cultivation, but this is no doubt the best, and in reality represents all the beauty of the others. It reaches 30 ft. high in North America, its native country.

NEVUSTIA ALABAMENSIS.—This new shrub, now in flower against one of the open walls at Kew, somewhat disappoints, for, judging by the dried specimens of it which Mr. Saul sent us from his nursery in Washington, we thought that it would prove to be very ornamental. The colour of the feathery clusters of flowers is a yellowish green, and certainly not attractive, but the flowers are produced plentifully, which compensates a little for their want of colour. Botanically, it is no doubt highly interesting, but from a garden point of view some of the Spiræas are much superior to it, particularly *S. mollis*, now loaded with white blossoms.

FINE SPECIMEN OF THE COFFEE PLANT.—In a general sense the Coffee shrub is not in-

for four, with a very fine specimen *Dendrobium densiflorum* with forty spikes of flower; *Phalaenopsis Schilleriana*, three spikes; *Odontoglossum Alexandræ*, one fine spike, &c. Mr. A. Paul was second with *D. densiflorum*, *Oncidium serratum*, a fine plant of *Calanthe veratrifolia*, &c. Messrs. Paul, Priest (Newbattle), and McIntyre, The Glen, also exhibited in the other Orchid classes.

A new feature was introduced by Dr. Paterson, Bridge of Allan, viz., a basket of Orchid flowers, and as it contained about forty varieties it had a fine effect, which the addition of some Fern or other green foliage would have greatly enhanced. This could have been seen on Messrs. Gordon & Sons' table, where a truss of bloom of *Dendrobium thyrsiflorum* was exhibited, backed up with a spike of *Asparagus plumosus*, which the pretty feathery dark green foliage of this exceedingly ornamental plant greatly improved. However, great credit is due to any exhibitor who will cut forty varieties of Orchids from his houses for the improvement of a show.

Tables of hardy spring flowering plants, four in number, had a very pretty effect. Mr. Begg, gardener at Wardie Lodge (the late Miss Hope's residence), was awarded a first prize for a very nice collection of plants, predominant amongst which were *Narcissi*, *Primulas*, *Fritillarias*, &c., *Anemone fulgens*, *A. apennina*, *A. blanda*, *A. Robinsoniana*, *Sanguinaria canadensis*, *Puschkinia scilloides*, *Caltha palustris* fl.-pl., very effective; *Ranunculus amplexicaulis*, *Bryanthus erectus*, a plant too little known, and numerous very pretty things. Mr. G. McLure was awarded a second prize for a nicely arranged and very fine lot of plants. The society would do well to encourage by a greater number of prizes these very interesting displays of what are now very popular plants. The four plants of *Azalea indica* exhibited by Mr. Paterson were well flowered and very fresh. Mr. Paul had very good plants, for which a second prize was given. Mr. Paterson was first for two and for three *Azaleas* in 8-in. pots. Mr. Paul being a worthy second in each instance and first for a single specimen. The *Azaleas* of course formed a very conspicuous feature of the show.

That veteran exhibitor, Mr. Paterson, who has held his own for twenty-five years and more, was placed equal first with Mr. Paul for six stove and greenhouse plants, but many thought Mr. Paul should have had the prize, as his *Cologene cristata* was a very fine specimen. Two *Azaleas* and *Erica Cavendishi* were all good. Mr. Paterson's smaller plants showed evidence of great care and attention having been bestowed on their cultivation.

Hyacinths, in consequence of the forward season, were not so good as they have been in former years, yet the twelve exhibited by Mr. R. M. Reid, Ravenswood, were fine. Duke of Wellington had fifty-eight pips and others were equally creditable. Mr. G. McLure in the second twelve had some good flowers. Messrs. Downie and Laird took the first prize in the nurseryman's class for eighteen distinct Hyacinths with a very good lot. Mr. Gordon Niddrie, had first prizes for some good *Narcissi* and *Cyclamens*, unusually fine for Scotland. Dinner-table plants were in good order, Mr. Graham taking the first prize for twelve, and Mr. McIntyre, The Glen, the second.

Messrs. Downie & Laird's twelve *Rhododendrons*, which took the first prize in the nursery class, were the great feature of the show, being large and well flowered; they were deservedly and greatly admired. Messrs. Todd & Co., Maitland St., had a very effective and gracefully made up bouquet of Orchids and white flowers which took the first prize, the second prize exhibit showing great want of taste in arrangement and waste of choice flowers. A fair average amount of fruit and vegetables for the time of year was also exhibited.

THE ROYAL HORTICULTURAL SOCIETY has issued the following circular to its Fellows:—"The council think it right to communicate with the Fellows at the earliest opportunity on the

effect of the recent decision of the Court of Appeal on the position of the society. Apart from any alteration of the views of the commissioners, the effect of that decision may be stated to be the placing of the society in the same position it would have occupied three years ago if the debenture holders had not then compelled it to defend the action of ejectment brought by the commissioners against the society, and had released the commissioners and the society from all claims in respect of the £49,700 secured by their debentures. As was explained to the Fellows in the annual reports for the years 1879 and 1880, and at the general meetings in those years, the society was forced to defend the action not only by its duty of protecting to the utmost the interests of the debenture holders, whose only security for the repayment of the interest on the large sum above named was the continuance of the society's tenure of the South Kensington Gardens, but also by the certainty that if this duty was neglected the debenture holders would take proceedings to make it responsible for such neglect. These proceedings would necessarily have resulted in costly litigation, which, if successful, would have rendered the whole property of the society liable for the destruction of the debenture holders' security. The council believe that the effect of the decision of the Court of Appeal is to extinguish all rights of the debenture holders as against the society and the commissioners. The action taken by the council in defending these rights was, as above stated, a duty and a necessity, recognised and approved by the Fellows in general meeting; but that duty performed, and the defence having failed, it is obvious that the result is in some respects to the advantage of both the society and the commissioners, and ought to facilitate the formation of arrangements for the future between the two corporations. The council, believing that an arrangement is possible, which would be in strict accordance with the trusts on which the commissioners hold their property, mutually advantageous to the commissioners and the society and beneficial to the public, are endeavouring, with this object, to enter into negotiations with the commissioners, the result of which will be communicated to the Fellows at the earliest possible time. In the meantime the Fellows may safely assume that no part of the programme for this season will be interfered with.

A CATALOGUE OF PLANTS.

We have had a communication from Mr. Ellacombe as regards the plan of this, but the first question that arises is, Do we not want two catalogues?—one a mere list of names printed very closely together for the purpose of exchange (synonyms and false names being omitted as far as possible), and another, a reference catalogue containing every information that could be wanted by the cultivator or amateur. It is impossible, we think, to produce a catalogue that will contain a large amount of useful information as regards each plant, and at the same time one that can be given away as a mere list of names might be. Our own belief is that both are wanted, but we wish to ask the opinion of some of our readers on the point. This once settled, the mode of drawing up the reference catalogue, and the many points involved in its preparation, would be brought in detail under their notice. The list might be produced at a low price. So far as we see, there are somewhat more than a dozen points on which information would be required in anything like a good catalogue of garden plants. It would be needless to give all these in simple catalogues used to facilitate exchanges. An important point, however, in the concise, cheaply printed catalogue referred to arises as to the varieties. Should they be given? It would be difficult to name all, but would it be well to name the principal varieties or groups of varieties?

Crocuses and mice.—Many complaints are made that Crocuses are destroyed by mice; this is easily prevented by planting them 5 in. or 6 in. deep; it is the acute sense of smell which distinguishes so many of the lower animals that enables mice to find out where anything good is to be had. The Crocuses will flourish as well, if not better, at the depth suggested, and the mice will be entirely baffled. The only disadvantage of this plan, if disadvantage it is, is that they will bloom later. As Crocuses yearly approach nearer to the surface of the ground, by forming the young corms above their predecessors, they should be taken up and be replanted every three or four years. Peas, too, may be effectually protected from mice in the same way. Sow them 4 in. or 5 in. deep, and make the ground over them solid by pressing it with the head of a rake, and the mice will not discover their whereabouts, which they easily do when they are sown within an inch or two of the surface, with the soil lying lightly above them.—J. G. N.

Seed growing for profit.—The remarks on "Cucumber growing for profit" (p. 237) are amusing. Although I have had no experience in such matters myself, it is probable that such tricks of trade exist. I have grown some novelties in the way of Cucumbers and found them to resemble ridge varieties, a provoking matter after cultivating them to a fruit-bearing state, I should much prefer such worthless varieties to remain, as Mr. J. Gohm's did, underground. The true Telegraph is for all purposes the finest Cucumber we have. Some time ago a firm advertised a good strain of Calceolaria; they also had some seed of an inferior strain, the germinating powers of which were destroyed by baking, and a little—just a little—of the genuine strain was mixed with each packet of the killed seed. Customers, therefore, only obtained a few seedlings, and some of them complained, but they were met with the retort that the seed had not been properly sown, as theirs had come up all right. Being all genuine, of course it did.—GEORGE POTTS, *Sarbiton Hill*.

Dog's-tooth Violet (J. R. Droop).—The plant you probably allude to is *Erythronium giganteum*, which, we believe, is not in commerce, at least in English nurseries.

Mushroom bed.—Will some of your readers kindly state in a few words how to make a Mushroom bed in an outhouse?—W. T. G.

Cytisus ratiabensis.—This is the name of a handsome and vigorous broom-like shrub, with closely-set lemon-yellow blossoms and downy leaves. From the gardens at Byfleet.

Heracleum giganteum.—Is this poisonous to grazing animals, or in any way deleterious? If not, I would like to plant it largely for ornament in covers.—C. M.

Polyanthuses (E. O. Riggby).—Your seedlings are vigorous and good. We do not go into fine points, as to their lacing, &c., but we should like to see a piece of rich flower border embellished with them.

Viola altaica.—One of your correspondents asks if the true *Viola altaica* is in cultivation. It is just coming into bloom here. I raised it from seed kindly sent me by Dr. Regel, from St. Petersburg, two years ago.—H. HARPER CREWE, *Drayton Beauchamp Rectory, Tring*.

Names of plants.—*Anon.*—1, *Narcissus incomparabilis* fl.-pl. (Orange Phoenix); the other double *Daffodils* are the *Sulphur Phoenix* and *N. Telemonius plenius*; 4 is *N. incomparabilis*; the shrub 2 is *Rhodora canadensis*. We do not name such things as *Polyanthus*, *Primrose*, &c.—*Colog.*—*Cologene fasciata*.—*J. Dace.*—A very good *Polyanthus*, but we cannot name it.—*M. E. C.*—*Doronicum Pardalanches*.—*W. B.*—1, *Odontoglossum pulchellum*; 2, species of *Epidendrum*, not sufficient material to name; 3, ditto; 4 and 5, forms of *Oncidium sphaeculatum*.—*A. B., Reading.*—1, *Doronicum Pardalanches*; 2, *Chrysanthemum segetum*.—*Mac.*—*Nepeta Glechoma*; impossible to name the *Willow* from such a scrap.—*J. Pratt.*—*Maxillaria Harrisonie*.—*C. Chatte.*—Send a frond of the Fern when it has spores on the back of it.

COMMUNICATIONS RECEIVED.

E. B. J.—Mc K.—J. S. & Son.—H. H. C.—J. R. D.—E. K.—W. J.—J. S.—Constant Reader.—A. M.—W. A.—W. J.—S. L.—H. R.—O. P.—R. D.—J. S.—G. L.—K. & Co.—J. H.—D. I. F.—J. E.—J. C. S.—J. S. & Son.—W. C.—O. L.

No. 544. SATURDAY, APRIL 22, 1882. Vol. XXI.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

FRUIT CULTURE IN DEVONSHIRE.

IN the autumn of 1880 I sent you specimens of Apples on branches cut from the trees which you pronounced (p. 321, Vol. XVIII.) to be most beautiful samples, especially the Wellington or Dumelow's Seedling. I now (April 4) send you a few of half-a-dozen sorts, viz., Cox's Orange Pippin, Cornish Gilliflower, Sturmer Pippin, Golden Ball, Wellington, Alfriston, and Blenheim Orange for you to form an opinion as to their condition after one of the worst seasons for keeping Apples and Pears I have experienced, probably owing to the weather being so severe in October and so extremely mild ever since. The orchard (3 acres in extent) in which the fruit sent was produced was planted seventy years ago. The soil is a light loam, about 18 in. deep on the red sandstone; it slopes to the S.W. about 1 ft. in 10 ft. and is naturally well drained. It is the worst of the Killerton orchards, the others being rich deep alluvial soil—what is generally known as good Melon soil, but as the one alluded to is in close proximity to the garden, only divided by the public road, I have for many years concentrated in this orchard the dessert and culinary sorts by re-grafting rather than gathering from different trees in the orchards generally. Many of the original trees are gone, through age and severe gales, but some fine large ones are still left. These have been regularly pruned, taking out all dead and small inside wood to prevent the head getting too thick, and to admit sun and light, thereby increasing the bearing surface. By keeping the heads, too, moderately thin, we suffer less than we otherwise would do from heavy gales. In this orchard we only lost one tree last autumn; it was heavily laden with Apples, and instead of being uprooted, the stock (15 in. in diameter) was split up by the sheer force of the storm. In pruning I never allow large branches to be lopped off, but aim at getting a well balanced, spreading head. It is the usual practice in this neighbourhood to top-dress with soil from the sides of the highway and road scrapings, and these are generally laid so close to the trunks of the trees as to bury them several inches or in some instances 1 ft. This I had all levelled down until we came to the first roots, an operation which has had a very marked effect on the after growth. This orchard has been generally well manured, and every year any deficiencies are made up by planting vigorous young trees, usually cider sorts, which make good stocks for grafting on, or pyramids which have got too large for the garden. Pears and Plums are also transferred to this orchard after having their side branches pruned off and made into standards. In planting, the pits are dug large and deep, but the trees are planted shallow and well mulched. I grafted a great quantity four years ago, mostly young healthy trees, with trunks from 5 in. to 6 in. in diameter, each tree being furnished with fifteen or twenty grafts. These are now fine trees; some of the strongest growers, such as Blenheim Orange and Warner's King, have made branches 10 ft. and 11 ft. high. One Blenheim I measured is 11 ft. 6 in. They are well furnished with bloom buds for this year's crop. They have been allowed to go unpruned until this year, my object being to let the natural growths grow with the grafts until the latter have made a good

head. This keeps up a more healthy root action. If too closely pruned, the roots, being disproportionate to the head, become inactive, decay, and ultimately cause the death of the tree.

OUR FRUIT ROOM is an old cider cellar with thick stone walls on the ground level, 32 ft. long, 18 ft. wide, and 9 ft. high. It has shelves all round it one above the other, and a stage of shelves in the centre made of 2-in. battens with 1-in. spaces between them. A little clean reed straw as prepared for thatching is laid on the shelves, and on that the Apples are placed. The windows are fitted with wooden shutters to exclude the light; in short, it is kept cool, dry, and dark. Above it is a large forge loft. Last year Glou Moreau Pears kept in this room till April.

PRICES OF FRUIT.—As regards these, Alfriston fetched 9s., Wellington 10s., and Golden Balls 12s. per bushel of about forty pounds, and other sorts in proportion. Now, as it takes seven bags, as we say in Devon, of 120 lbs., or 21 bushels, to make a hoghead of cider, to be finished off, racked, &c., by March, it is obvious that at these prices it would be equivalent to nine, ten, or twelve guineas per hoghead. Apples sent to a good firm in Covent Garden would involve little if any risk as regards bad debts, and there would be carriage and commission only to allow for; whereas cider making involves a good deal of labour, expense as regards coopersage, and a good deal of liability to bad debts. We use up the small sour sorts and windfalls, which are unmarketable, for cider, with plenty of sweet ones to improve the quality and to enhance its value. I would not advise growers a long way from a good market, as we are, to grow mid-season sorts of Apples. Last autumn the salesman to whom I send my Apples wrote to me as follows: "The market is glutted; they won't pay carriage." I would therefore advise growers to plant very early good sorts, such as Lord Suffield, Manks Codlin, Hawthornden, or good late sorts and good bearers, such as Blenheim Orange, Wellington, and Easter Pippin. Some of the tenant farmers in the parish of Broadlyst, one of the largest in Devon, consisting of 9000 acres of good soil, are going in largely for the late sorts just named, for which they already find a good market. I give away yearly thousands of grafts, the applications being fully equal to the supply.

FOR PROTECTING THE STEMS from sheep and cattle I have used Furze or Thorn bound round them, and sometimes very narrow galvanised netting set lengthwise up the stem; but I have an idea it attracts the lightning, as several trees so protected suddenly died. I am now using the thin outside scales of bark from the saw mills, in strips about 2 in. wide. These I nail to the trees with wire nails, setting them parallel to each other. They keep in their places, and expand with the growth of the trees until their own bark becomes self-protecting.

Killerton, Exeter.

JOHN GARLAND.

Low night temperatures for Vines.—A good deal now-a-days is set down as new which is in reality old. For instance, we were told some short time back that raising young Vines by placing a pot or slate with soil at the base of a young shoot and allowing it to root into it was a good plan and something new. The plan is a good one and saves time, but it is not new, as I adopted the same system twenty-three years ago, and probably it was not new then. Low night temperatures are considerably older. I remember when all the large fruit-growing places were heated with flues, and when the temperatures on cold nights could not be maintained higher than 50° without over-heating the flues, some excellent flues were grown considering the quantity of glass in use; but low night temperatures are not all gain, as it takes longer to bring the fruit to

perfection, and time is money, particularly in the case of those who grow for market. As I have had the opportunity of practising both the fast and slow systems for a considerable time, I can speak confidently that either answers well if properly managed, and circumstances must regulate cases; for instance, if Hamburg Grapes are wanted ripe by March 25 and Muscats by the end of April, they must be treated accordingly.—JAMES SMITH, Waterdale.

Does Pine growing pay?—"D." (p. 209) is fully convinced that Pine growing, when properly managed, will pay. It is easy to be convinced where no profit and loss account has to be produced at the end of every six months. Previous to the introduction of fruit from St. Michael's, many Pines were grown for market in Lancashire. The time allowed from potting the suckers to cutting the ripe fruit was eighteen months, and although we got fuel at a reasonable rate, the prices ran so low that it was impossible to keep the balance on the right side. The supply of St. Michael's was so abundant, that beautiful fruit weighing six, seven, and eight pounds did not realise as many shillings. If the prices named at p. 108 could have been realised and the demand brisk, Pine growing for market would have increased instead of diminished.—JAMES SMITH, Waterdale.

—Mr. Cowburn says (p. 257) the leaves can only be collected in quantity in the autumn, and when employed in active bottom heat they become useless through fermentation in four months. Allow me to inform him that I have pits filled with leaves in autumn, spring, and during the summer months, and that I have no means of renewing the bottom heat for the rest of the year; nevertheless, I always manage to get a satisfactory crop of fruit in twelve, thirteen, fourteen, and up to eighteen months, and sufficient suckers off the old stools to replenish the pits; then leaves are used if required.—D.

Planting Melons from their seed pots.

—This is a practice which we think should always be adopted by growers whose means of rearing young plants are not satisfactory. Last year we had some which were shifted on in the usual way before being planted in their permanent quarters, and others which were planted from their seed pots as soon as rough leaves were fairly developed, and we found that the latter have succeeded better than those twice shifted. Let the bed be thoroughly warmed before the young plants are put into it, then let the house be kept close and the plants shaded from bright sunshine, supplying them with abundant atmospheric moisture, and scarcely any check to growth will occur; at least, if any check is sustained, it will only occur once by adopting this system, whereas the evil is repeated by the other; some labour is also saved, and leggy plants avoided.—J. M. G.

Apple Rambour Papeleu.—This Apple is apparently not yet much known either in this country or on the Continent. M. Burnevich stating that neither Leroy nor Hogg make any mention of it, and the Messrs. Simon Louis place it among varieties awaiting trial. In Flanders, however, more especially in the neighbourhood of Ghent, this Apple is largely grown, and is remarkable for its vigorous habit and great fertility. M. Burnevich states that it is most highly valued as an orchard tree, and is one of the very best kinds for double grafting. The fruit, as illustrated in the *Bulletin d'Arboriculture*, bears considerable resemblance to Cox's Orange Pippin, and is described as coming large, sometimes very large, of good quality, slightly acid, ripening at the beginning of winter, and lasting until January. It is said to be fit either for culinary purposes or for dessert.—J. CORNHILL, Byfleet.

Fruit weights (p. 253). But the following are market weights: Cherries and Currants, 43 lbs. to the bush; Damsons, Gooseberries, and Plums, 56 lbs. Apples never sold by weight; different sorts would perhaps average 40 lbs. per bush. Raspberries and Strawberries are sold by the pound; they would probably be classed as Currants if sold by the bushel.—L. A. K.

ORCHIDS.

ORCHIDS AT LOWER NORWOOD.

At the Castle Nursery here there is an uncommonly rich collection of Orchids, well selected as regards varieties, and grown in an excellent manner. Every necessary condition has apparently been studied in the construction of the houses in which they are grown. They are roomy, but not too large, well glazed, and ventilated and amply heated. In order to keep the atmosphere moist, the stages are made watertight by means of cement; in fact every part of the stages is made of cement, so that they are practically indestructible, and they also afford no harbour for woodlice or other vermin that often cause such havoc in Orchid houses. The shelves are shallow, having a raised rim round the edges about 1 in. in depth, and on the surface is laid a thin layer of gravel which helps to retain the water, and give it off slowly. The paths, too, are cemented so as to hold water, though this is scarcely necessary, the stages holding sufficient to maintain the requisite degree of saturation in the atmosphere. Mr. James, the proprietor of this nursery, is an advocate for shading Orchids in moderation, particularly the cool house section, though the material, a kind of scrim, is not heavy. He considers shading to be beneficial, provided it is applied judiciously, but not to such an extent as to cause drawn and sappy growth. The plump, firm bulbs of the *Odontoglossum*, and the finely developed, thick textured leaves of the *Masdevallias* are sufficient proof of the skilful treatment to which they are subjected.

On this occasion there was not much bloom; indeed, we doubt if at any season the visitor would find much, for as soon as the plants flower they are either disposed of, or the blossoms are cut for decorative purposes. This practice of cutting the bloom before it exhausts the plant to any appreciable extent is a wise one, at least in the case of plants for sale. Take, for instance, the fine variety of *Cattleya Mendeli*, now called *Jamesiana*. Last year it developed a flower-sheath which was nipped in the bud; after that the plant soon began to push another growth, and this year the new bulb has borne the two remarkably fine flowers described in our report of last meeting at South Kensington. A careful examination of the collection of plants revealed the fact that several were treated somewhat differently from what they are in a general way; for instance, *Oncidium aurosum*, which is usually grown in moderate heat, is here with the *Masdevallias* and *Odontoglossums*, and the luxuriant health of the plant is sufficient proof that the conditions suit it. Again, *Dendrobium japonicum* is often grown with the rest of the genus; here it is with the cool Orchids and growing admirably, with stems almost the size of those of *D. nobile*. *D. Jamesianum*, *infundibulum*, and others of the *Nigro-hirsute* section are succeeding along with the cool Orchids in a similar satisfactory way. *Odontoglossum vexillarium*, of which there is here a fine stock, is grown with the rest of the genus in a moist, cool house, and this plan Mr. James has always found to be the best for this queen of cool Orchids. Numerous similar examples could be adduced, but those interested in the matter would do well to see for themselves.

Amongst *Odontoglossums* in this collection we observed fine plants of *O. pardinum* grown better than we have yet seen it. *O. cordatum* aureum is an uncommonly fine variety. *O. coronarium*, an Orchid rarely seen, is doing well in the cool house; as are also *O. angustatum*, *xanthoglossum*, and a host of others of a similar stamp. The pretty little *O. Cervantesi decorum*,

so often sought for, but so seldom obtained, is quite a speciality in this nursery. Amongst *Masdevallias*, besides the commoner kinds, of which there are some grand specimens, there are such varieties as *M. rosea* and *M. vespertilio*, the plants of which in the country might be counted on the fingers of one hand. *Epidendrum vitellinum majus*, grown in the coolest house and coming into flower, shows how well it likes a cool moisture-laden atmosphere, and in the same house was a goodly batch of the charming little *Leptotes bicolor* in flower. Among the *Cattleyas* are some choice varieties of *C. Mossiae*, *Trianae*, and *Mendeli*, besides the superb *C. Dawsoni*, which promises for flower this season. *Cattleyas*, *Laelias*, and similar Orchids form a fine collection and, like the cool Orchids, are in excellent condition. In the East Indian house we noticed some fine plants of *Odontoglossum citrosium* apparently reveling in the high temperature and moisture of the house. *Cypripeds* comprise a fair collection, and fine plants of *C. levigatum* and crowds of *C. niveum* show well what Mr. James intends to do at the coming exhibitions. *Dendrobies* include the superb variety of *Dendrobium nobile* which has been named *nobiliss*. It is very large and highly coloured, and one of the handsomest of the genus. It is at present extremely rare, and there are but a very few plants here, though it had its origin in this nursery. By placing *Laelia furcacea* in the full blaze of sunshine, it is hoped that it will be induced to flower.

W. G.

PRUNING ORCHIDS.

THE practice recommended by "J. S. W." of removing the back bulbs of Orchids while they are yet full of life I have tried myself more than a score of years ago with such species as *Dendrobiums*, *Cattleyas*, *Miltonias*, and *Oncidiums*, and I have known and seen the result of similar treatment in the hands of others, and, as might be expected, the practice turned out to be injurious in some respects and valueless in every way. The flowers of species like *Dendrobium nobile*, *D. moniliforme*, *D. Devonianum*, *D. transparens*, and *D. chrysanthum*, *Cattleya intermedia*, and *C. Loddigesii* can be much more effectively used when the bulbs are even partially cut away with them, and in the case of strong, healthy plants an occasional growth may be removed to half or a little more of its length without the ensuing season's bulbs being much, if any, smaller; but if you keep on repeating the practice for even three years, you will reduce the bulbs to not more than half the size they attain on plants of the same kind not so mutilated. This, at least, was the result of my experiments, and in no case did a bulb that was partially removed make a double lead, which is so far a loss in the increased size of the plants.

Most people look upon an ability to increase the number of leads from back breaks as no slight evidence of successful Orchid culture. It would be a little interesting to see what sort of growths those back bulbs that "J. S. W." has cut away to within 1 in. of the bottom make, even if they ever break at all, about which a good many who know something concerning Orchid cultivation will, I imagine, have their doubts. My practice with most bulb-forming Orchids was to never allow more than three, or at most four, growths in succession to go on without putting the knife through the connecting stem. This I did as soon as the season's growth was finished, by which means the eyes of the back pieces have all the time until the growing season commences to enable them to plump up ready to start with the leading bulb. But if "J. S. W.'s" method was followed, not one of these back pieces in a dozen with their single inch of bulb remaining would break an eye.

The description which "J. S. W." gives of a *Dendrobium* of racemose habit with six bulbs left and the remainder cut away does not convey

a clear conception of the condition it really was in. Are we to understand it to be a series of six bulbs in a continuous line of single breaks? Or are there some double breaks amongst them? There is a good deal of difference between these two conditions in exemplifying what effect cutting away the back bulbs has had on the leading growths. But it does not do anything to commend the practice as regards the back breaks which are sacrificed under the system which "J. S. W." advocates, and which if left unchallenged would be not unlikely to have imitators amongst those who are inexperienced, and who, like those who have tried the practice before, would find out their mistake after their plants were injured. The old bulbs of Orchids are of use to the plants so long as they have vitality enough in them to plump up every season during the time of growth. They may be so far back as to have little influence upon the leading bulbs, but they can and do support the back breaks, which those who make the most of their plants take means to secure, but which are non-existent under the pruning system.

T. BAINES.

— I see that Mr. Spyers simply deals with theory as regards pruning Orchids, and by his way of discussing the matter we shall never arrive at a conclusion on the subject. Neither does his success at South Kensington prove anything but skill in other respects. I should not have the least objection to accept his South Kensington challenge if it was practicable and likely to serve the purpose, which it cannot; but I am open to test the matter practically in any other fair and exact way he may suggest and abide by the result. As I said before, if he will send me two plants of *Dendrobium Wardianum*, by which the experiment can be made quickest, I will treat one to the pruning process and leave the other unpruned, and I will afterwards send the plants to South Kensington or anywhere else before an impartial tribunal; or if he will send me one plant, take the number of old bulbs on it, and note the length and vigour and number of nodes, &c., I will experiment with it under the same conditions. The plant need not be valuable, and I will guarantee its value to him. I beforehand in case of any misfortune befalling it. I attach these conditions only, viz., that the plant be sent to me before it sheds its leaves while they are still green. It will ripen it, flower it, cut it over, and start it into growth, and have it ready for view in the autumn or winter of 1893 if all goes well. I do not know that I could make a more reasonable proposal, or one easier for Mr. Spyers to fall in with if he is really in earnest in desiring to ascertain the truth on the subject. He does not appear to have made any experiments in the way mentioned himself, while I have examples of the correctness of my views every day, and will be glad to show them to Mr. Spyers at any time. With regard to cutting the bulbs "clean away," I have not altered my statements in any way. I certainly do not pare them down to the very buds no more than I would shave the eye of a Vine or Peach in pruning it, but 1 in. of the base of the footstalk is certainly all I leave, and in the case of stems several feet long I do not think that is worth quibbling about. For "every spike" read "every bulb" when speaking of flowers in my last letter. As to "every Orchid grower" knowing when and where racemose *Dendrobiums* will bloom, I acknowledge I cannot tell at which bud exactly the flowers will appear before they reach a certain stage, and I do not think that Mr. Spyers can do it either.

J. S. W.

Dendrobium densiflorum.—A magnificent specimen of this beautiful Orchid is now in perfection in the gardens at Warnham Court, Sussex, the seat of Mr. C. T. Lucas. The plant referred to is about 3 ft. in diameter, and of nearly equal height, and literally one mass of bloom, there being no fewer than sixty spikes, a great many of which carry over thirty blooms. I never saw a finer example.—H. HARRIS.

Oncidium nudum.—This rare Orchid, now in flower in the Kew collection, is remarkable for

its singular fleshy, cylindrical foliage, which resembles that of the *Scuticariacae*. The flowers are similar in colour to that of the majority of *Oncids*, being yellow, blotched with brown, and about the size of those of *O. sphacelatum*. It is the same *Orchid* probably as that sold at Stevens's last year as *O. Cebolletta*.

NOTES AND READINGS.

ROOT-PRUNING AND EXTENSION THE SAME.—The root-pruner is an extension trainer in principle. The only difference between them is that the first makes his tree fruitful by cutting off the supplies, while the second provides additional mouths in order that all the supplies may be appropriated to their natural end, and when he cannot provide the requisite mouths for his purpose, he root-prunes, too, but cutting off the roots and branches at the same time he regards as wholly opposed to the principles on which the root-pruner proceeds, for it leaves the tree in pretty much the same condition as before. It is not, however, the mere effect of any system of pruning upon the tree which one has to consider, but its effect upon the extension and simplification of fruit culture generally. The *Gardeners' Chronicle* admits that market gardeners have always followed the "no-pruning" system; and why? Because they cannot afford to prune after the fashion recommended by scientific cultivators, and yet the market gardener's tree, if it gets an equal chance, will produce just as good fruit as the most scientifically trained one, and far more of it. No wonder such facts make reflecting people pause and think, seeing they cannot be controverted. There is only one way in which the two systems can be proved, and that is by planting a few varieties of trees under exactly equal conditions, pruning and pinching one set in the strictly orthodox way, and letting the other alone, except such thinning as may be needed to let the light into the branches, and comparing the results extending over a few years, including the cost of labour in each case. It is such an experiment as any public garden should and could take in hand, and, seeing there is so much aimless discussion on the subject, it is exceedingly desirable such an experiment should be made.

YEW FROM SEED.—It is greatly to be desired that nurserymen would propagate such subjects as the Golden Yew and others of a similar habit from seed instead of from side branches, which never assume the natural habit, but are always awkward and ugly, train them as one may. Much disappointment has resulted from planting trees so propagated, and none are better aware than those who sell such plants that they are not right nor what people expect who unfortunately too often only discover their mistake after years of culture. All the Yews vary considerably in habit from seed, but all grow in a shapely form; whereas cuttings from side branches never become anything else than branches, and are utterly unaccommodating and disappointing in all ways.

GOOSEBERRIES.—A friend who wanted to plant a few real good Gooseberries says he was referred to a standard work on gardening for information, where he found a list of something like 80 of "the best varieties." This is quite true, and it is true also that, notwithstanding the number of kinds in cultivation at the present time, all, or nearly all, of modern raising, the best sorts still consist of those kinds enumerated by Loudon and others nearly sixty years ago, viz., Warrington, Ironmonger,

the Champagnes, Green Gage, Sulphur, Whitesmith, and a few others. It may be doubted if a better list could be put together of the kinds that have been raised since Gooseberry improvement and culture have been left to Lancashire operatives, whose chief aim has been to raise kinds of monstrous size, the majority of which are unfit either for dessert or preserving purposes. Many good judges would prefer three or four of the old sorts named for eating as long as the Gooseberry season lasted to all the large prize kinds in existence. The small varieties are not popular, though some of these are amongst the best flavoured; but neither are extremely large kinds desirable for dessert, while moderate-sized varieties are preferred for jam, provided they are of good flavour. We doubt if there be a better white kind than the old Whitesmith, or a better or later red than the Warrington, and these and the Sulphurs, early and late, and red Champagne furnish a selection numerous enough and good enough for any garden until we get better ones.

THE FLOWER GARDEN "PROPER."—Although even the most ardent advocates of the bedding-out system manifest a desire to be in the "swim" with the advocates of hardy plants and a less formal style of gardening through fear, probably, of being accounted obstructionists to the new and popular "departure," it is clearly with reluctance that they lend their countenance to any innovation of the bedding style. A writer, who, ostensibly at least, advocates the merits of hardy plants tells us, for example, that "the flower garden proper" must still be the "geometrical" garden filled by "summer bedders;" "the flower garden proper is no place for herbaceous plants." It is not an extravagant opponent of hardy plants who makes these statements, but a writer of moderate opinions who clearly says what he thinks, viz., that the "proper" flower garden is no place for the numberless varieties of the most beautiful and effective of those productions of Nature that we call flowers, and which first suggested a garden to man. The flower garden "proper," we apprehend, is a place for *Calceolarias*, *Polygoniums*, *Feverfews*, *Lobelias*, carpet plants, and a few spring subjects of accommodating habit, all nicely arranged in lines and patterns just as it happens to strike the designer, whether his tastes be good or bad. Lilies, Daffodils, Carnations, Delphiniums, Pæonies, Phloxes, Roses, &c., do not come under the head of "proper" flowers, and are, therefore, not eligible subjects. Unless the term proper here has been applied in the same sense that *Punch's* crossing-sweeper applied into the "proposers well," we should say that a reversal of the term would meet the case satisfactorily. Call the "bedded-out garden" by its own name, and the hardy garden in its several and interesting phases the "proper" garden, and there would be no objection whatever to the distinction.

PEREGRINE.

Double flowered Daffodils.—We have been charmed with the beauty of these of late. Some that come to us from Capt. Patton, who has made a speciality of these flowers, are very well grown and beautiful. Many years ago, in Shakespeare's and Parkinson's time, double Daffodils were commonly grown in English gardens, and they must have been handsome, judging by the engravings published in Parkinson's and similar books. Then, after many years, they disappeared, and have to be found now often with great difficulty. They varied a good deal in form and size, and were very showy. Most of the types, from the Poet's Narcissus to the common one, became double, some of the largest, such as Butter and Eggs and Eggs and Bacon, as they were called,

being very handsome and bold indeed, and some very good and broken in form. We advise our readers who care for hardy plants to look after the double Narcissi. Amongst the best of the obtainable kinds are Orange Phoenix, sulphureus fl.-pl., aurantius fl.-pl., odorus fl.-pl., and poeticus fl.-pl.; others are equally good and interesting, but rarer.—V.

GARDEN STRUCTURES.

FIRE-BRICK FURNACES.

I do not see why the fire-brick idea for furnaces is not an agreeable one to boiler makers. It cannot make one jot of difference to them directly. If the heater is to be of the kettle form, suspended over a well of fire, the purchaser will have to buy two kettles and keep two fires going to heat the same pipes that a water-jacketed boiler with one fire would do. Fire-bricks cost almost as much as a water jacket. If there is any rule of thumb principle, it is in the advocacy of putting a pan or kettle of water to heat hot-water pipes. It is not a question of the nature of heat and combustion, as "Peregrine" (p. 248) would infer, but the application of the heat obtained by combustion. I am not very good at logic, and my arguments may be faultily expressed, but I am quite willing to convince "Peregrine" by actual experiment that his kettle theory is wrong.

Granted that you get a greater heat ascending from a fire-brick furnace than a water-jacketed one, is that an advantage? Where is the fiercest heat? In the centre of the fire. The next hotter place? The sides of the fire, the least heat being above it. In the outline here

given, F is the centre of the fire, B B the fire-brick at the sides, and K the kettle or boiler. I cannot give precise temperatures, but approximately and proportionally K may be 2000°, but at F it will be under 800°, while at B B it is

nearer 1200°. Where is the immense heat at B passing to? Does it warm the kettle? Just a little, but most of it passes through the bricks and far away beyond them. Now let B B be the sides of a saddle boiler; that heat must be intercepted by the water, and as you cannot get that water up to or beyond 212°, the little heat it can communicate in turn to the outer casing of the boiler is infinitesimal; a thermometer at O O on fire-brick sides indicating about 600°, and with an iron and water-way about 150°. The multiplication of water jackets is quite unnecessary if you obtain the greatest heat from the fire against your boiler of whatever it may be. If there was no necessity for a chimney and all the heat obtained by combustion of fuel could be boxed in under the kettle, still it would not be so good as the water jacket, because of the conduction of heat through the fire-bricksides, but there must be an inlet for fresh air and an outlet for the heated air above, or the fire will go out. I admit the heat under K may be greater with brick sides than with a waterway there, but look at the small area there is for that heat to be absorbed. It must glance off above quickly and rush up the chimney. Suppose the fire-box to be 12 in. each way, the kettle being 12 in. by 12 in. by 4 in. deep, and the outlet or flue 4 in. square; change the fire-box to 8 in. by 9 in. by 24 in. deep, with a kettle 8 in. by 9 in. by 8 in., and the same flue; the contents in each case will be precisely the same, yet how much sooner will the flatter kettle boil than the square one;

and why? Change once more, and let the kettle form both the sides and top of the furnace, its thickness of water being 1 in. only; it will now contain one-fourth more water, but it will boil in less than half the time. In this illustration you have the whole of the two theories put into practice.

One more very simple test I suggested before, which "Peregrine" or any other person of the same way of thinking can try. Get three poker or metal rods of equal size, have a good fire going (I care not whether with brick or iron sides), place one poker in the middle of the fire, another at one side, and the third over the fire where a kettle would be, and observe the comparative time spent in getting them to a temperature of 300°. My argument here may be somewhat faulty, because the heat passed through the sides will not be as much in proportion as through the top (heat always ascending, and the relative value of heating surfaces, according to engineering formula, being 100° horizontally and only 50° vertically). Let us make one more trial. Let us suppose you are near the kitchen fire. Put over the fire a sheet of iron, or an old pan of the same thickness as the side of the oven next the fire; now place two thermometers of high ranges one in the oven and one in the pan, and compare notes. I have referred to the temperature in the middle of a fire as compared with the sides and top, because it explains why the boiler most nearly approaching perfection in "Peregrine's" opinion does heat so well, being surrounded as it is by fire-bricks.

A tubular boiler, whether it be a gridiron or an upright one, is right on the fire at F, and so it is exposed to a much greater degree of heat than one would be at B, or a solid one at K, and the waste of heat on the brick sides is not so noticeable. Here, I may mention incidentally, is the reason why tubular boilers fur up so much quicker than saddles do with the same water. The heat is so much more intense on a smaller body of water, that it is continually at boiling point, and incrustation is caused more by the boiling of the water than anything else. The reference to a kettle over a spirit lamp is of no use compared with a deep fire of coal or coke. The spirit flame is close under and flattened out by the kettle, but flatten out a smoky coal fire to 1 in. thick, and press your kettle on that, and what will be the result? If too much heat goes up the chimney it is mostly because there is nothing of use to absorb it on the way, and only partially because the fire is too big for the boiler. What is the meaning of the common saying that a boiler is not powerful enough for its work? Is it not that there is an insufficient surface for the fire to play upon? and not that there is too little fuel burnt under it. Reduce your fire, and you reduce your heat in a greater ratio. Keep your fire the same, and increase your useful absorbent water-jacketed surface to a certain extent, and you increase the heat in your pipes. Mere extent of flue surface is a delusion and a waste. I do not recommend, and would not have a tubular boiler or waterway bars, but the latter are warmed with what is merely waste or spare heat from the fire. Many a stoker cooks his dinner or warms his breakfast underneath the fire-bars of his boiler. Does this reduce the heat used for the boiler above? On the other hand, I would equally refuse to have a boiler on the many-flued or shelf principle, because the water in so many jackets cannot be heated to the average temperature of that in the pipes, and it would thus decrease rather than increase the power of the boiler. I have not seen Mr. Fawkes' new book yet, but the constant circulation of air utilising the heat absorbed from the fire through the jacket (as I understand

"Peregrine") is old enough. Ask Mr. Wright what he does in the base of his boiler furnace. I have had the same arrangement in principle a long time. Look at all the "Regenerator" furnaces, cooking stoves, and gas burners constructed in this way. As applied to the matter in dispute here, what is it all but an admission that an ordinary furnace, whether of brick or iron, is wasteful, and an attempt to utilise the heat which would be more profitably used in heating water in the majority of cases.

In conclusion, I will gladly pit a water-jacketed furnace without a single brick above or below against a fire-brick one with the kettle above, each boiler to heat 600 ft. of pipe, the owner of the one that consumes most fuel in raising the temperature of water to 200° in a cistern at the far end of the pipes to pay all expenses and publish the results in THE GARDEN. Yet another word. It is frequently insisted (as in the opening sentence on this subject, p. 248) that a hot-water apparatus manufacturer is interested in advising a more expensive article than is necessary. But who gets the better bargain with the crudest or kettle form of boiler, so easy to make that the maker gets 40 per cent. out of a selling price of £10, and under which the purchaser burns £12 worth of fuel annually? or with a more perfect and difficult water-jacket at £20, out of which 20 per cent. profit only can be made, and in which the purchaser burns but £8 worth of fuel in the same time?

33, Highgate Road. B. W. WARHURST.

VENTILATING PLANT HOUSES.

THE advisability of admitting cold air next the pipes, and thus warming it before it reaches the plants, is now the stalest of stale injunctions. In some cases and where admitted with due caution, at certain times and seasons it is an advantage to be able to let in air through apertures in the front or side walls as the case may be with lean-to, hip-roofed, or span-roofed houses. But to square the theory of those who urge the importance of this arrangement we must admit the necessity of allowing a through current of air to plants, &c., when often none at all is required more than will find its way into the tightest constructed houses. It would be immeasurably better that no means of giving air in the way under notice existed than to let it in to the extent and at the times of the year too often practised. The advantage urged is that in severe weather the cold external air can be thus brought in contact with the pipes, and in this way warmed before it reaches the plants. There is none wanted at such times, either in hot or cool houses, more than will get in of its own accord, or can be very much better given at the roof, thus avoiding the draught which results in crippled foliage, and no end of ills to plants subjected to heat enough to induce growth during the cold season. Even with plants that require only enough heat to preserve them from frost there is a vast deal too much of this mistaken current system of ventilation ever going on through the deceptive months of March and April, and often a good part of May as well, with their bright sunny days accompanied by cutting winds. How often do we see house after house filled with plants with the wind rushing in a current at the side openings through the plants on the stages above and out at the ridge in a way that even a Gorse bush or a tuft of hardy Heath could not bear without injury if so placed. It should be ever remembered that a cold draught in a building has a very different effect on plants, just as it has on animals, to that which occurs in the open air. Plants of all kinds both stove and greenhouse, with the exception of Orchids, that too often get an insufficiency of air during their season of growth, very much often suffer through having too much air than too little. If all that has been said and written on the subject of ventilating plant houses had been

directed in urging the very much more important matter of making them both structurally, and in the position where placed such as to give all the light possible, more good would have been effected.

T. BAINES.

EDITOR'S TABLE.

PRIMULA ACAULIS PLATYPETALA.—This, from Messrs. Osborn, is one of the prettiest of double Primroses, the peculiarly bright purple colour of the compact rosettes being very showy. A good assortment of varieties of the dwarf spring Irises, Gentianella, and other beautiful flowers accompanied the Primrose.

EXOCHORDA GRANDIFLORA.—Miss Jekyll asks why this hardy shrub, with its many large white flowers, is not more grown than it is? It may be because it does not succeed so well on all soils as it does on those of a light, warm, sandy character, such as abound in Surrey. Its graceful strings of pearl-like buds and its white blossoms are very pretty.

ODONTOGLOSSUM PESCATORIEL.—In order to see the real beauty of this charming Orchid, one requires such an example as that just sent to us by Sir W. Marriott. We have seldom seen so fine a spike—one carrying nearly fifty blossoms of large size and pure white, with the exception of the edges, which are flushed with purple. The spike in question is also widely branched and hangs in a very elegant manner.

THE WHITE BUTTERCUP (*Ranunculus alexicalis*).—This plant, with its graceful greyish leaves and pretty white blossoms with yellow centres, is always welcome. Everybody who cares for the lovelier hardy flowers should try to secure a group of it for the choice border or rock garden. It grows vigorously enough in free, moist soil. From Munstead.

CATTLEYA CITRINA.—We always considered this Mexican Cattleya to be one of the most distinct and beautiful of all Orchids, but never before have we seen so fine a flower of it as one just sent by Sir W. Marriott. It represents a very fine form of the species, the flowers being not only much larger, but the colour considerably deeper and richer—a fine pure golden hue, the texture being massive.

ODONTOGLOSSUM POLYXANTHUM.—This new and rare cool Orchid comes from Sir W. Marriott, Down House, Blandford. The spike sent bears half-a-dozen flowers, each of large size and with markings distinct and well defined. Though not one of the showiest of Orchids, it is not without beauty; but with such a vast number of attractive kinds it will, perhaps, never be very popular. The colours are, however, very good though quiet.

ROSEMARY IN BLOOM.—This, we suppose, is welcome to everybody at all seasons; we have a particular fondness for its delicate, Sage-like flowers, which in some cases may seem inconspicuous, but we have seen bushes of it on which they were quite effective. The variety sent us from Munstead seems very pale. There are probably different varieties of this, as of most other very popular plants. It flowers best when planted on a dry, warm bank.

RIBES PALMATUM.—The finest of the series of yellow flowering Currants in flower just now is this one. It bears on its slender shoots numerous drooping racemes of bright, golden blossoms, with scarlet stamens arranged in a ring, like

the cup of a Poet's Narcissus. These yellow flowered Currants form a quiet contrast with the red flowered kinds when planted in a group, and the transition from one colour to the other is seen in R. Gordonianum, a hybrid variety. In general effect this bush is like the Missouri Currant (R. aureum), of which it is a close ally or form. From Mr. Stevens.

HYDRANGEAS.—Mr. Bennett has sent us two plants of the common Hydrangea in pots from Besborough, Cork—beautiful specimens. The package indeed looked as if it contained a dozen plants instead of two, so large and bushy are they, and every branch carries a huge head of lovely pink bloom, in some cases measuring fully 9 in. across. Such plants Mr. Bennett finds useful for house decoration; they last long in bloom and are much admired.

MITELLA DIPHYLLA.—We had no idea of the value of this old plant before receiving a well-grown bunch in flower from Miss Jekyl, who writes, "The bunch does not give the pretty effect of the plant as it grows. The flowers stand up with a sort of modest dignity well above the fresh, young leaves, and the old leaves are a dark red-bronze, that makes the young leaves and flowers look all the fresher." It is a little hardy plant which grows freely in peat borders or quiet corners anywhere.

DOUBLE JAPANESE CHERRY.—This charming shrub, named *Cerasus japonica* fl.-pl., comes beautifully in flower from Messrs. Osborn's nursery, at Fulham. It is one of the best of the double flowering Cherries, the white of the compact rosettes being so pure compared with other kinds. It is a little tender, but the mild winter and spring have been favourable to it. A few good sized bushes of it produce a fine effect in a shrubbery if placed so that the flowers are seen against a background of dark foliage, and not the sky.

CHEIRANTHUS DILLENI.—This is a beautiful rock Wallflower, with curious buff-coppery flowers. It is dwarf and distinct, and comes into bloom some weeks earlier than the common clear yellow alpine Wallflower. It is very fragrant and an excellent subject for the rougher parts of the rock garden, growing as it does very freely and vigorously, and well fitted for grouping with the free-growing larger type of rock plants. It grows in good soil over 1 ft. high and spreads into tufts 3 ft. across.

VIRGINIAN COWSLIP (*Pulmonaria virginica*).—The first flowers we have seen this season of this beautiful hardy plant came from Mr. Stevens, who grows it well at Byfleet. It is a plant to be made much of, for the pretty nodding heads of purple-blue flowers make it a beautiful garden plant. A moist peaty border in a quiet nook is just the place in which this plant is at home, and certainly no hardy flower is better worthy of such a spot. Have any of our readers tried it by the waterside?

BANKSIAN ROSES IN APRIL.—We have received from Mr. J. C. Tallack, Pridaux Place, Padstow, lovely clusters of the white and yellow Banksian Roses, from plants which cover a space on the south front of a house measuring 25 ft. by 35 ft. They are now, Mr. Tallack says, beautifully in bloom, especially the yellow kind, which seems the freer of the two, and from which wreaths could be cut from 5 ft. to 6 ft. in length without showing 6 in. of wood without a truss of bloom. Most people like the white sort best, on account of its peculiarly sweet scent, but it

does not form such a compact truss as the other. Both kinds, however, make charming wall plants. Along with the Roses also came some alpine Auricula blooms and a truss of *Pelargonium* which has withstood the winter out-of-doors in that part of Cornwall without protection.

CATTLEYA SKINNERI.—A cluster of this noble Guatemalan Orchid comes to us from Sir W. Marriott's garden, in Dorset, where it must be grown very skilfully, as the spike carries ten large and highly coloured blossoms. The lovely harmony of colour in this Orchid is remarkable, the glowing rosy purple hue being set off to excellent advantage by the soft creamy white of the lip. An Orchid possessing such beauty, and being comparatively of easy culture, deserves to be much grown.

LELIA FLAVA.—An uncommonly fine spike of bloom of this Orchid bearing fourteen flowers from Sir W. Marriott shows what a good plant as well as distinct it is when really well grown. It is usually seen with two, three, or at most half-a-dozen flowers on a spike, and in such a condition is never very showy, but this specimen furnished with quite a crowd of flowers is very showy. It is one of the few pure yellow-flowered Orchids we have, the colour being good and uniform. In form and size the blossoms resemble those of *L. cinnabarina*, a kind which bears cinnabar-red flowers.

TULIPA RETROFLEXA.—Among various hardy spring flowers from the Sunbury Nursery (Messrs. Osborn's) we are glad to see this and other wild Tulips, which combine with gay colours great beauty of form. *T. retroflexa* is a clear golden yellow; *T. cornuta* has singular long petals, yellow, feathered with red; *T. elegans* has deep red flowers, somewhat small, but elegant. Other bulbous plants from Messrs. Osborn include the various forms of the Spanish Scilla, *S. campanulata*, Narcissus *Bulbocodium*, *Fritillaria Meleagris*, Grape Hyacinths, and Snowflakes, making altogether a welcome gathering.

THE IBERIAN IRIS.—An exceptionally large and handsome bloom of *Iris iberica* is sent us by the New Plant and Bulb Company from their nursery at Colchester. It is almost as large as a flower of *I. susiana*, but much more attractive, as the erect petals are of such a soft, delicate lavender hue, which is in strong contrast to the singularly marked fall, having an intensely black velvety blotch in the centre of each. This *Iris* is assuredly one of the handsomest flowers in Nature, and though a little fastidious in our gardens, its flowers amply repay any trouble bestowed on it.

FINE FORM OF ODONTOGLOSSUM CRISPUM.—A fine spike of a lovely variety of this Orchid reaches us from Mr. E. Fowler's garden at Ashgrove, Pontypool, where Orchids seem to be admirably grown. The flowers of this variety are large, pure white, and heavily blotched with cinnamon-brown after the manner of the markings of the *Chestertoni* variety. It is certainly a lovely Orchid and one of the finest forms of the species we have seen. With it comes a flower of a variety in the way of, if not identical with, *O. Mulus*. The markings are large, chocolate-brown on a yellowish ground.

RHODODENDRON COUNTESS OF SEFTON.—From Mr. Isaac Davies, Brook Lane Nursery, Ormskirk, comes a truss of this charming new Rhododendron, of which he has now a large number of plants in flower in his nursery. The

truss is dense and massive, the flowers bell-shaped, white, tinged with pink, and deliciously scented, as are the blooms of two other kinds sent with it named Duchess of Sutherland and Lady Skelmardale. These greenhouse Rhododendrons are certainly a most important class of plants well deserving attention. Countess of Sefton is one of the most distinct of a very fine set of plants.

THE RED TARTARY HONEYSUCKLE.—Several varieties of this shrub (*Lonicera tatarica*) have reached us from Byfleet this season, but the one now before us is the finest of them. It is called "rubra grandiflora" and merits the name. The colour is a rosy carmine, and the flowers are borne copiously amidst the foliage. Other flowering shrubs from Mr. Stevens are *Cerasus Caproniana* fl.-pl., one of the double white Cherries; *Prunus sinensis* fl.-pl., a very pretty double white Plum; *Spiraea chamaedrifolia* and *confusa mollis*, and a golden-leaved variety of *Philadelphus coronarius*.

SPIRÆA CHAMÆDRIFOLIA.—The very early flowering *Spiræas* are so few, that we ought to cherish them more than we do. The finest in flower has been *S. mollis*, a variety of *S. confusa*, a kind with feathery heads of white blossoms. Now we have before us some excellent sprays of *S. chamaedrifolia*, a shrub of graceful erect growth, wreathed with numerous small white blossoms, the buds of which are similar to those of the Hawthorn. It comes from Messrs. Osborn's, Sunbury Nursery, amongst other choice spring flowering shrubs.

A CATALOGUE OF PLANTS.

It seems to me that it is impossible within moderate compass to have a catalogue of names of hardy plants to suit all tastes. One person has a fancy for Ferns and their varieties, another grows Polyanthes, another Saxifrage, Sedums, Sempervivums, and so on, and a full catalogue therefore to suit one person would not suit another. As you invite suggestions, I would say that a catalogue of the names of species suitable for gardens with the leading varieties only should be given, and that it be closely printed in the cheapest manner, say in three columns; but besides printing copies in the usual form as an 8vo pamphlet, some copies might be thrown off at the same time on thin gummed paper on one side only, with the view of cutting up and fastening into a blank paper note-book. The person who grows Polyanthes would therefore in this book leave a large gap after *Primula elatior* for their names. The grower of Saxifrage, Sedums, Sempervivums, &c., would leave spaces after each, according to the extent of his collection. As a single copy is all that most people want for private use, the labour of cutting up and fastening the names in a book would not be great, and the result in a well arranged, compact, and easily read list would amply repay the trouble. For those who have no speciality, the list printed and stitched up in the ordinary way, with or without interleaving, would be sufficient. It would be well to include trees and shrubs in the list. The above remarks apply to a catalogue of names only. The reference catalogue you speak of would be very useful indeed, but a much more serious matter to draw up.

P. NEILL FRASER.

Rockville, Murrayfield, Edinburgh.

—For a cheaply printed "exchange catalogue" it would surely be best to leave blank spaces for the insertion of species, the spaces to vary in proportion with the known varieties of any one species.—A. KINGSMILL.

Boilers.—Could any of the readers of THE GARDEN assist me by recommending the best boiler to work about 600 ft. of 4-in. piping? Also can they give any experience of Green's Patent Tubular Saddle Boiler.—C. F. W.

INDOOR GARDEN.

SOLANUM JASMINOIDES FLORIBUNDUM.

YOUR notice of this variety, which from its blooming in a small state must be a great improvement on the original species, leads me to enquire how it is that the latter has so generally dropped out of cultivation. At one time there were few more popular plants. In the small conservatory of the amateur, as in the more ambitious houses of the more wealthy, one or more of these plants were often found. Now it is seldom one meets with one anywhere. The plants were easily grown, and when they had reached the flowering stage the most floriferous examples of *Stephanotis* could hardly exceed them in the numbers and continuousness of their flower. The foliage is small, light, and elegant, and few plants could yield more flower and throw less shade than this species of *Solanum*. The flowers of the species could hardly, however, be described as snow-white, but rather French-white, which was a slight drawback to their use at times in combination with the paper whiteness of *Stephanotis* and *Gardenias*. From the peculiar light and almost fluffy character of the flowers, however, they formed a most elegant finish to bouquets, either alone or alternated with Valley Lilies or pink or white *Bouvardias*. For forming rosettes or terminal sprays in wreaths, this *Solanum* was also most useful. It also looks chaste and elegant in slender sprays in baskets and small vases, either by itself or contrasted with Violets and Forget-me-nots. At one time we grew so much of this *Solanum* that hardly any of our floral arrangements or combinations were considered complete without it. But somehow *Tacsonias*, *Clematis*, *Roses*, and other climbers have displaced it. No plant can be easier grown in the usual mixture of loam or leaf-mould, or peat and loam. Aphides are partial to it, but they are easily destroyed, and the plant may, by close pruning, be made to rest at any season when the flowers can be spared for a time. They will break, grow, and flower freely, and in a temperature of 45° or 50° it is generally possible to cut flowers of the *Solanum jasminoides* nearly all the year round, though the season of most profuse flowering in our *Camellia* house used to be from July to January. D. T. F.

HYBRID PELARGONIUM EMPEROR.

THIS, a true hybrid, is by no means new, but on account of its remarkably free growth and shy flowering habit when young, it has been less grown than might otherwise have been the case. For some purposes, however, it is an exceedingly useful plant, and when fairly established in a large pot or tub, or, what is better, planted out in a border of ordinary good soil, and trained to the back wall of a greenhouse, the pillars of a conservatory, or any similar situation, it will in a short time cover a very large space, and bloom most profusely throughout the spring and summer months. Its trusses are large, and also the individual blooms, which are of a beautiful soft rose colour, while the foliage is also handsome, bearing a striking resemblance to that of the common Irish Ivy. As has been said, it is a hybrid, not a crossed plant, having been produced between two distinct species. Although hybrid plants are not invariably found to be sterile, the greater portion of them, nevertheless, are so, and such has been found to be the case with the plant in question, which cannot be induced to bear seeds, nor has its pollen been found to produce any effect upon the stigmas and other varieties of the *Pelargonium* family. Its ancestry, however, may be considered interesting, and so far as it is known, may be worth recording. It was produced from a seed of *Pelargonium petatum*, the bloom of which had been fertilised by the pollen of a strong growing zonal variety named *Culford Rose*. The latter having been raised from the first really good white-flowered zonal introduced, viz., *Madame Vaucher*, fertilised with the pollen of *Emperor of the French*, a fine strong scarlet variety originated

between Kinghorn's Attraction, a silver tricolor, and a heavily zoned, green-leaved sort, at that time known as *Cottage Maid*. P. GRIEVE.

Bouvardia cuttings not striking.—The treatment of the cuttings, all but the syringing overhead, described by "A. E." (p. 260) should have insured their striking, as they root freely if made from shoots in the right condition. Where a cutting box is sufficiently close and due attention given, there should be no need for syringing overhead; yet even this would scarcely have caused wholesale damping unless the unstruck shoots had been allowed to flag. The cause of failure is more likely to be found in the cuttings not being right through the plants being insufficiently dried off. The short rest and partial drying off named was most probably insufficient, the shoots being merely checked whilst water was withheld and again starting into growth when hardly have been in worse condition. The resting process should be carried far enough to reduce the plants to much the same condition that a *Fuchsia* is in spring when devoid of leaves or soft growth of any kind. When the plants have been brought into this state, immediately moisture and warmth are given them; the latent buds break at almost every joint, and when these young growths are a couple of inches long they are fit to take off, and will strike as freely as *Fuchsias*. Tough, half-matured shoots, such as have been checked by withholding water, or through a low temperature and again started into growth, are sure to fail.—T. BAINES.

—I have struck thousands of *Bouvardia* cuttings with scarcely a single failure; indeed, if the cuttings are made wholly of the young growth which they are quite as easily struck as *Fuchsias* and similar plants. My method is, after flowering to give the plants a short rest, and then to start them in a stove or forcing house; when the young shoots are of sufficient length, I take them off (not necessarily at a joint) and insert eight or ten of them in a 4-in. pot, well drained, and filled with light, sandy soil. After a thorough watering they are placed in a case in the propagating house, kept at a temperature of from 60° to 70°, but not plunged, and the lights are left off until the foliage is dry, as damp must be guarded against, but not long enough to allow them to flag. The after treatment consists in shading during bright sunshine, in watering when necessary, but not syringing, and in removing the lights for an hour or so each morning to dry up surplus moisture. Thus treated they become rooted and fit to pot off in about three weeks from the time of insertion. There are several things which may account for "A. E.'s" failure in regard to propagating these plants; for example, the cuttings must have been kept much wetter than necessary. When plunged, syringed once or twice a day, and kept shaded in a close case, they must have been always saturated, whereas it is only necessary to keep the soil moderately moist and the foliage as dry as possible, provided it does not flag. Again, a bottom heat of 75° or more seems to imply that they were at times very hot; while if the fire was let out during the day, and the heat of the bed cooled down, a great fluctuation of temperature would be the result, and, contrary to Nature, the greatest heat would be during the night. When kept too damp the very succulent cuttings would fall a prey to damp at once, while those of a firmer texture would resist it for a time, but, as in "A. E.'s" case, would ultimately succumb.—H. P.

Stopping Chrysanthemums.—Mr. Douglas gave us an article on *Chrysanthemum* culture for the production of large blooms for exhibition some time ago, but he omitted to give directions as to stopping the plants. I have given a quantity of cuttings according to his directions, which are now very strong in 5-in. pots. I stopped them when about 6 in. high, and they are making some good growths. Ought I to stop the three leaders from

each plant any more? Is there any means of retarding the blooms? Mine were too far gone before the show last year.—J. C. T.

Deformed yellow daisies.—Do yellow daisies require any particular treatment? The flowers in my case always come deformed.—F. B. [The yellow Daisy requires nothing more than ordinary greenhouse treatment, but to be in bloom in winter it should have the temperature of an intermediate house. It frequently happens that individual plants of many kinds when under cultivation have a tendency to produce deformed flowers. This defect is often caused by something adverse to their well-being either in the propagation or after-treatment. Sometimes they will out-grow it; in other cases the malformation continues. When this occurs it is not safe to propagate from such a stock. I should advise the plant being tried yet for a month or two; it may come right as the season advances.—T. B.]

Nicotiana affinis.—Will the wonders connected with this plant ever cease? It is an universal favourite wherever seen, and is equally at home in the conservatory and in the cottager's window. The elegance of its flowers delights, its perfume is unique and very grateful, and the vagaries of opening and shutting its blooms are a surprise to all. As a tender annual nothing can excel it, for it blooms and blooms from early summer until late in autumn, and if taken up no doubt would grow again next season. The greatest characteristic of this plant has, however, yet to be told. Mr. Alfred Salter made the discovery, and I have proved it, that the roots, of which there is a large supply, produce young plants in the same manner as the Musk or *Anemone japonica*. The tobacco pipe-like roots laid underneath the soil in a warm place soon yield an abundance of small plants, but whether these will grow equally robust as those raised from seed time alone will show.—W. H. CULLINGFORD.

Primula Sieboldi and its varieties.—These are well suited for greenhouse decoration; for, although hardy, under glass their flowers are much richer in colour than when unprotected. Large masses of them may be grown in pots or pans, or a very useful way is to have single-flowering plants in small pots, as they may then be used for decorative purposes where space is limited. To ensure this end shake out the plants in winter and pot all the plump eyes singly in sandy loam and set them in a cold frame till the blossoms commence to expand, when they should be removed to the house. The small crowns may be potted several together in a large pot, when in one season they will reach a flowering size. After the blooming season is over plunge the pots in a cool, shady position out-of-doors, and keep them moderately moist during the summer, by which means they will root and grow vigorously. The following are distinct and good, viz., *Clarkeiflora*, bright in colour, but somewhat small; *corollæ* alba, white tinged with blue; *Hermia*, deep purplish lilac; *lacinata*, a red with beautifully fringed petals; *lilacina marginata*, whitish, edged with lavender; *Pink Beauty*, delicate pink and much fringed; *purpurea*, deep purple; *Vinæflora*, a variety which in general appearance reminds one of *Vinca minor*.—H. P.

SHORT NOTES—INDOOR.

Bouvardia Alfred Neuner.—Is it really the case, as affirmed by some, that cuttings taken from side shoots of *Bouvardia Alfred Neuner* produce single flowers instead of double? Messrs. Carter have written to the gardening papers that this is the case.—GREENOCK.

Meconopsis Wallichii.—Can any of the readers of THE GARDEN inform me where I can obtain seed of this? I have looked through several seed lists, but cannot find it.—C. LINDSAY HERFORD, Westbank, Macclesfield.

Seedling Pelargonium (W. F.).—Apparently somewhat inconstant; but, nevertheless, a lovely variety, and one which cannot fail to be a favourite, the colour being so bright and well contrasted.

GROUP OF CYCAS SIAMENSIS.

In order to fully realise the beauty of Cycadaceous plants, one needs to see them in such noble proportions as those represented in the accompanying illustration, which shows a group of the Siamese Cycas in the garden of the Acclimation Society, in the Bois de Boulogne, Paris, where there are about fifty large specimens, some of which have trunks 6½ ft. in height, and from 6 in. to 10 in. in diameter. This species of Cycas is remarkable for the singular manner in which the base of the trunk enlarges into a huge conical mass, gradually acquired from the time of germination—a peculiarity which adds greatly to the quaint aspect

CONSERVATORIES ATTACHED TO DWELLINGS.

In general little effort is made to render these structures effective; the eye becomes weary in surveying the orthodox formal stages or stands upon which the plants are usually placed. I lately, however, had the privilege of witnessing a break or new departure from the old system of furnishing these useful adjuncts to a family residence. The building in question is only about 20 ft. by 12 ft., but it illustrates in a remarkable manner how much may be made out of a little. For want of a better term it might be called a conservatory rockery, the material used being tufa from Derbyshire, which seemed to be admirably adapted for the purpose. In the dis-

noted the following, viz. *Fuchsia fulgens*, *Heliotropes*, *Maréchal Niel* Rose, &c.: these by-and-by will be attractive, and hanging baskets tastefully planted were suspended from the roof. The view of the whole from the drawing-room and library is charming indeed. I am indebted to the courtesy of the owner, Mr. S. Hildesheimer, of Notting Hill, for the opportunity of seeing this unique arrangement.

X.

PROPAGATING.

PROPAGATING DOUBLE PRIMULAS.

THERE are some double Primulas, such as Gilbert's beautiful varieties, which cannot be raised true from seed; the only way, therefore, of increasing them is to propagate them from cuttings, and now is a good time to perform that operation. With us, and doubtless with others, double-flowering Primulas are more branching than the single kinds; some of our old double-flowered plants have as many as a dozen side growths on them at the present time; others have fewer, but all have some, and of these every one will be converted into a cutting. Some have naked stems several inches in height; others are well furnished close down to the soil. The former are handiest and easiest rooted; the latter need most care, being rather inclined to damp off if any excess of moisture gets about them. In taking the cuttings each should be cut clean through, as far down as possible, with a sharp knife, and if any can readily be secured with a little bit of root attached to them all the better. When any of the leaves have to be removed from the cuttings they should be gently drawn off from the axil and not cut, as this makes an objectionable wound. The best way of treating them is to pot them singly in the smallest sized 2½ in pot in a mixture of sand and leaf soil in equal parts with the addition of a little fine charcoal. This being done, they should be plunged in a little bottom heat if possible—from 60° to 70° being enough—and the temperature of the atmosphere may be about the same. One watering may be given at first, but little afterwards until they have formed roots, as water is more liable to do harm than good. Our cuttings root in about a fortnight, and as soon as that takes place they are withdrawn from the bottom heat, but still kept in rather a warm house or pit until they are established, when they are shifted into larger pots, and grown on like ordinary Primulas.

CAMBRIAN.

Group of *Cycas siamensis*.

of this Cycad, and the same thing also happens in the case of the *Dasyliirions*, *Beaucarneas*, and *Pincenectias*. The immense head of handsome foliage surmounting the grotesque trunk gives the plant a very striking appearance. *Cycas siamensis* is decidedly the most important of the genus to which it belongs, being remarkable for the beauty of its foliage and stately port. Its tenderness has been much exaggerated, as plants of it have wintered well in the large conservatory in the gardens just named, where the temperature has at times fallen nearly down to zero. This Cycas is well worth attention from its beauty of form and singularly picturesque appearance.

position of the various subjects employed, informality is the order of the day, the foliage and flowering plants, which are in excellent condition, being very judiciously arranged so as to form a harmonious whole. A striking feature in the arrangement is a pond into which the water trickles from the rocks above. Amongst the aquatics planted there I noticed the sweetly scented Cape Pondweed, and I must not omit to mention how much at home a small, but select collection of succulents planted round the border appeared to be. They consisted of small examples of *Aloes*, *Agaves*, *Haworthias*, *Echinopsis*, *Sedums*, *Echeverias*, &c. These intermingled with *Lily of the Valley* produced a very pleasing effect. Amongst plants known as climbers I

Aralias.—Among the stove kinds, some such as *reticulata*, *leptophylla*, and *Guilfoylei* may be readily struck from cuttings, which are best taken from the plants in a rather soft condition, as if allowed to become in any way hard they remain a long time without rooting or even callusing, while if cut off when young and kept close and not overwatered, they soon root. On no account allow them to flag, or many will be lost, to prevent which the case must only be open for an hour or so each morning to allow the superfluous moisture to escape, and shading must be used during sunshine. For such things, indeed, shading must now be employed whenever there is the least glimpse of sunshine. *A. Veitchii* takes so much time, and is so liable to go off before rooting, that increasing it by means of cuttings is scarcely practicable. It must be grafted on one of the free-growing kinds, preferably *A. reticulata*, with which it readily unites, and on which it thoroughly establishes itself. Where there are plants of the latter that have grown too long, the tops should be taken off and inserted as cuttings; then if it is intended to use the plants as stocks for *A. Veitchii*, they may be shortened down to a convenient height, but not below 8 in. or 9 in. from the soil, and not so low as that unless there are a few leaves left to keep the sap in circulation. After the top has been off a few days, graft, and with this plant what is known as side grafting is best; thus a slight incision is made in the stem at about 1 in. above

the soil; then the same distance above the cut insert the knife and make a slanting cut down to the first incision. The graft must be fashioned in such a way as to exactly fit the stock, and then tied in securely; the grafted plant must be kept close till a union takes place, when it may be loosened off by degrees and the top of the stock removed. The well-known *Aralia Sieboldi* is easily struck from cuttings if the small weak shoots produced at the base or up the stems are selected, and the Japanese Rice-paper plant (*Aralia papyrifera*) may be increased to any extent if the roots are cut up into pieces of 1 in. or 2 in. long and dibbled perpendicularly into well drained pots or pans, a method that may be successfully employed with the large hardy *Aralia spinosa*. When these root cuttings are put in the upper part should be kept about $\frac{3}{4}$ in. below the surface, and the pots or pans should be placed in a close frame.—H. P.

Clematis indivisa is struck from half-ripened cuttings inserted in pots of sandy soil and covered with a bell-glass, or the young shoots may be grafted on pieces of the root of the common Clematis as practised with the hardy kinds, and treated in all respects like them. A climber that many fail in propagating is the variegated *Cobaea scandens*, owing, oftentimes, to the strong shoots being used as cuttings. For this purpose choose small, weak shoots whenever possible, and make them like ordinary cuttings. If such cannot be obtained, then take the weakest of the climbing branches and cut them into single eyes, leaving at the same time 2 in. of stem attached to the base of each; insert them so that the bud is just clear of the soil, give a good watering, and keep them close. Being liable to damp, the pots used should be small, putting only about three or four cuttings in a pot, as in this way they are less liable to decay than when crowded together in quantities. Damp being the great enemy to guard against, give a little air whenever there are any signs of its appearance.—T.

Propagating *Calycaanthus floridus*.—In a recent number of THE GARDEN, speaking of the *Calycaanthus floridus*, you omit to give the easiest method of propagating it, which is to dig down to the roots and discover an incipient sucker, or one that has not yet made its appearance above ground. This taken off and buried will grow and do nicely.—L. A. R., New York.

MARKET GARDENS.

Fruits.—There are many less pleasing sights than that which a well-kept market orchard now presents. The qualifying term "well kept" is too essential to be omitted, for there are far too many market orchards where Couch Grass and big weeds predominate—where the soil beneath the trees is never cleaned or cultivated, and the bush trees below become one mass of prickly wood and twining Convolvulus. Gardens of this kind mean ruin. A really well kept garden orchard is as widely as possible the converse of this picture. I went through such a one the other day, and from end to end not a weed was to be seen; the ground beneath the trees, all bush planted, had been dressed with manure in winter, and then lightly forked in, but ere this was done every tree and bush had received the useful pruning, and, now full of leafage or bloom, presented a sight of which anyone might well be proud. The long lines of overhanging trees—Apples, Pears, Plums, and Cherries—with a row of Currants or Gooseberry bushes beneath each line, and two other rows of bushes beneath presented an appearance of health and fruitfulness that could not be excelled. All these, because the soil is stiff and cool, are planted on ridges and along the sides; beneath the bushes run rows of single and double Primroses, Daisies, and various hardy flowers, or where the bushes are younger, rows of strong Strawberry stools full of leafage are thus early throwing up flower buds. Gooseberries I have never seen fuller of bloom; Currants are not less promising; Plums are white as snow; Pears are blooming with marvellous profuseness; so also are Cherries; and Apples already show their rosy

blossoms in great abundance. If we encounter no mishap this must be a grand year for fruit.

Peas.—Some kinds of Peas are not turning out quite so satisfactory as could be desired. In one case some twenty bushels of Harrison's Glory, got from a large seed house, have given a miserable plant, one that must be ploughed in. Such mishaps as that represent not only the loss of the seed, but also the contingent profits of the crop, and some fair compensation should be given. Seedsmen should not only give to market growers a guarantee as to growing quality; they should refrain from selling a stock only 10 per cent. of which germinates. The early white sorts are showing a good plant, and are largely sown. Wrinkled kinds are being got in rapidly, and in this district Peas not only do well, as a rule, but prove to be one of the best-paying crops. The old-fashioned way of planting out winter greens between Pea rows is not now so common as it used to be, because it is found that the gatherers do the plants irremediable harm. Peas will invariably come off soon enough to be followed by breadths of Coleworts, sprouting Broccoli for late cutting, Turnips, and Spinach. Peas also are not a costly crop to cultivate, as they do not take much out of the ground, whilst the horse-shoe, one of the very best general implements for market garden work, will not only keep the soil clear of weeds, but will get it into a nice pulverised condition for earthing. When there is a good crop of pods, and the gatherers are plentiful and expert, so that the produce may be soon run into the market, all goes well; but if gatherers are neither plentiful nor expert, and half the produce gets hard before it can be marketed, then profits become doubtful. Expert pickers can not only gather quickly, but they instinctively know which are the right pods to gather, and thus secure a good, even sample. Still further, they don't tear and bend the haulm at the first gathering in the reckless way in which new, untrained hands do.

General crops.—Except where Peas and Broad Beans, the latter never largely grown, are showing in rows, the ground presents a very bare appearance, for green crops, with the exception of Cabbages, are now cleared off, and the soil freshly manured and planted. When speaking to a large grower the other day as to the rapid disappearance of green stuffs, he said, "It was a good job too, for sixpence per bushel for sprouting Broccoli or Kale would pay no one, and we may be sure that few fortunes are being made with such prices, whilst some may be easily lost. Onions and winter Spinach, too, are over; so are Wallflowers and Violets; so that light loads to market is the order of the day. Very many Potatoes are being planted, the early clearing off of green material favouring this crop greatly. "Peregrine," I notice, thinks Potatoes are as a rule planted too thickly; but the space given to individual plants must depend upon the routine of cultivation. It is such a waste of useful soil to give sets 3 ft. space when the soil is worked only some 7 in. to 8 in. in depth with the plough. Ordinary market garden practice consists in heavily manuring the surface soil, but not in deep culture. In some high class gardens trenching may be done, or where Celery is largely grown the soil gets worked to a depth far below the average. Trenching, however, is very costly, and though its results may be thrown over several years yet the first cost has to be met, and as current takings cannot pay for it, capital must, and few like to draw heavily upon capital unless there is a prospect of an immediate return. I am not sure that the culture of Potatoes in large mounds, as advised, would answer for market purposes, for all the work would have to be done by manual labour, and if a crop so grossly grown did escape the disease the major portion of the tubers would assuredly be too large to give consumers satisfaction. Next to getting a healthy crop it is of the first importance that it should be a paying one; and clean medium sized ware is always more profitable than extra large and essentially ungainly tubers. Generally the soil is working remarkably well, and all kinds of crops are going on well, but

the drought renders it needful that plant beds should be looked sharply after to keep the fly in check. A. D.

TREES AND SHRUBS.

TRANSPLANTING EVERGREENS.

THIS is the best month in the whole year for the transplanting of evergreen shrubs, as with ordinary care they may be moved now without any fear of loss, the genial showers and heavy night dews being of material assistance in keeping the foliage fresh, and helping the plants to start into rapid root action. In the autumn the vital powers of evergreens are at a much lower ebb, and they have the winter with its hard frosts and scathing winds to contend with, and each day then the earth is losing its warmth; whereas now the temperature is continually rising, and all vegetation is waking to new life and strength. The great point in the successful transplanting of evergreens is to lift them carefully, so as to preserve all their roots, and especially the fibry portions of them, which are essential for keeping the plants alive till they are able to form other feeders. Not only is it necessary to lift carefully and preserve rootlets, but they must be kept from drying, which can only be done by covering them and the ball of earth during the transit of the plants to the place where they are to be planted. A wet mat is as good as anything to lay over or wrap round; but, previous to putting it on, it is a good plan to syringe or sprinkle the ball of earth with water, as then the ball and the roots will keep damp a long time. That the plants may be out of the ground as short a period as possible, the holes for their reception should be dug before they are lifted, as then there is no delay, and they can be dropped and covered up in their places at once. In the digging of the holes they should be broken up deeply, as it often happens that there is a hard pan below, which, if not disturbed, is impervious to roots, and it is impossible for plants to thrive if these cannot act; and not only should the holes be deeply dug, but they should be large, that the roots may be spread out properly at full length, instead of being doubled up and crippled for want of room to extend. In placing the plants in position in the holes, the balls should be kept so high that the collar of the trees or shrubs may be on a level with the surface of the ground, and, with the roots arranged in the way referred to, the filling in with fine soil may commence. Before this work proceeds far a heavy watering should be given, which will wash the earth into any cavities that may exist under the ball, as the filling of these is a matter of the utmost importance to the after welfare of the plants. If these happen to be of large size, it is a good plan to slightly sway them to and fro, so that the puddle of soil may draw under and in amongst the roots, after which it should be left for a time to subside, when the remainder of the earth may be shovelled in and made firm by the foot. The next thing is to mulch heavily with long strawy manure; if this be done, it is the greatest help that can be afforded to newly transplanted shrubs, as it not only maintains an equable temperature in the ground, but prevents evaporation, and thus conserves the earth's moisture and enables the roots to take care of themselves. What interferes more than anything else with newly moved shrubs and trees, and prevents them from becoming quickly established, is wind-waving, which causes a perpetual strain, and destroys the young tender fibres as soon as they form. To guard against this is therefore a matter of consequence, and the steadying of the stems should meet with early attention. There are several ways in which this may be done, but the most secure is by the use of three long, stout poles, or stakes to each plant, which poles or stakes should be placed tripod fashion, with the stoutest ends in the ground and the points brought together at top, so as to meet the stem of the tree or shrub about three parts of the way up. To prevent chafing, it is necessary to protect the trunk where they meet by binding around the bark some soft hay or old

carpet, when the stakes may be securely tied, and the plant kept perfectly steady. Stout galvanised wire used in a similar manner to the poles, and made fast to stakes in the ground, answers the purpose equally well, and is neater and better on lawns where the plants come into view. For trees or shrubs of a small size a single stake to each is sufficient if driven well into the ground, in doing which care should be exercised to steer clear of the roots. S. D.

PRUNUS TRILOBA.

If any shrub merits popularity more than another it is surely this one; it is one of the



Flower of Prunus triloba (natural size).

finest of all hardy spring-flowering shrubs, and one of the least known. We have Almonds and Peaches in abundance, but rarely have we met with *Prunus triloba*. There is a fine plant of it against one of the walls at Kew, where it covers several square yards, and every spring is literally covered with rosy pink blossoms. It begins to flower just before the leaves expand, and before the last flowers have fallen it is in full leaf. The blossoms, which are semi-double, are arranged so thickly on the slender branches as to make them quite floral wreaths. As a standard its growth is dwarf and spreading. The only good examples of it in this shape which we have seen about London are in Battersea Park, where they have formed a great source of attraction this season. Though a native of China, it is perfectly hardy, but the flowers are sometimes injured by late frosts. It appears to grow well under any ordinary condition, and requires very little atten-



Flowering spray of Prunus triloba.

tion when once planted. It is also called *Amygdalopsis* Lindley.

W. G.

Forsythias.—Good examples of these have lately reached us from various parts of the country; but, in admiring their beauty, we have to think of the fact that walls are not the proper places for them. Certainly we have often seen them looking well on a wall, and it is better to put them there than not to have them at all; but to get their best effects they should be planted on sunny banks and fringes of shrubberies, and allowed to grow in a natural manner, save a little careful thinning of the shoots—we mean placing them so that they could not be choked or robbed by other things, and where at the same time grow freely and naturally. We never saw the plants in the full force of their effect till one day we observed them growing on a rocky bank carpeted with Ivy. In this case, as in many others, it is not enough to have a fine plant and leave it to chance to place it where it will grow well; we ought in all cases to consider where it will look well, and to place it. Those who have it on their walls already might well try and plant a group on some spot having the advantage above mentioned, or similar ones.—Y.

BERBERIS DARWINI.

THIS is one of the most ornamental early spring-flowering shrubs that we have. It is suitable either for a wall, or for single specimens on the lawn. It has a good effect when planted at the back of wide herbaceous borders at intervals, with other flowering or ornamental-leaved shrubs. Being an evergreen, it is effective at all times, whether it is in flower or not. Plants of it have a grand effect in mixed shrubberies, associated with Portugal and other Laurels, Box trees, Hollies, Lilacs, flowering Currants, and other evergreen and deciduous trees and shrubs. We have a fine specimen growing here upon a west wall, which has been in flower since the second week in February, and even now it looks as if it would continue in bloom another month. It would be difficult to describe the splendid effect which it produces when in full bloom, its orange-yellow flowers clothing the whole wall and making a striking contrast with other plants, such as *Pyrus japonica*, *P. Maulei*, *Ribes sanguineum*, *Kerria japonica*, and other flowering shrubs. Bushes of this plant have a grand effect; when they get large they often produce vigorous shoots, which rise above the rest considerably, and these, when in flower, give the bush a natural and graceful finish. If planted upon the banks of lakes or ponds, they have a grand appearance when large enough to hang over the water, more especially in spring when laden with flowers. This plant does well if planted upon islands, either mixed with other plants, or in groups by itself. It has a fine appearance when in bloom early in the year, and again in autumn, when laden with coral-like berries. Where covert for game is wanted in quantities, this is one of the best shrubs to plant. It does not dislike shade, and will grow as freely as the common *Barberry* so much used for forming underwood in places where little else will grow; and pheasants feed freely upon the berries when ripe. Branches of this shrub, cut before the flowers are quite open, last a long time in perfection when put into vases filled with water, or thin sprays may be mixed with other cut flowers. Young plants of it may either be raised from seed sown in rows 12 in. apart, or sown broadcast upon beds in March. The young seedlings should be transplanted into nursery rows the second autumn after sowing, or early in winter. Young plants may also be grown from layers laid down early in the autumn. Bend some of the outside branches close to the ground, then partly cut them through with a sharp knife, and peg them down with a strong wooden peg, covering them over with some fine soil; they will soon emit roots, and be ready to be severed from the main branch during the following autumn, when they may be planted in nursery rows until properly established, and in the next autumn or winter they may be planted in their permanent places.

W. C.

KERRIA JAPONICA.

THE double flowered variety of this Japanese shrub is so common that it needs no description; the only object we have in alluding to it is to bring under the notice of our readers a remarkably fine form of it that has recently been imported direct from Japan by Mr. McIntosh, of Duneevan, Weybridge, who exhibited it at the last meeting at South Kensington. In this variety, which is called *K. japonica* major, the flowers are not only much larger than those of the ordinary form, but their petals are considerably broader and the blossoms altogether finer. When first Mr. McIntosh flowered it it was thought that high cultivation had something to do with the production of such large flowers; but after growing it along with the ordinary form it has proved to be distinct. So handsome is it as to be a real acquisition, and we are pleased to know that Mr. McIntosh intends to present plants to the Royal Horticultural Society with the view of distributing it. It received a first class certificate from the society last year.

The single flowered form of *Kerria japonica* is likewise a very pretty shrub, but rather uncommon; indeed, in but few gardens can it be seen. The variegated variety of it is also a charming plant, as everyone will admit who has seen



Double-flowered Kerria japonica.

the plants of it which are now in full bloom in the temperate house at Kew—dense bushes covered with golden blossoms intermixed with silvery foliage. It is, however, only fair to say that we have never seen the variegated kind so good out of doors. Both the major double variety and the variegated single variety of *Kerria* or *Corchorus japonica* are well worth attention.

W. G.

New Ceanothuses.—Of the many new varieties of *Ceanothus* obtained of late from the Continent, *Gloire de Vaise* is one of the most conspicuous. It produces large branching spikes of flowers of a pale blue colour. *Bleu Céleste* is a little paler in colour, quite enough to make it a distinctive variety, and very good also. One of the very best of the pink-flowered varieties is *Maria Simon*, the flowers of which are of a good and striking hue of colour. *Le Géant* is of the same tint, but paler, yet very pretty and attractive. There are now so many fine varieties in cultivation that it would not be difficult to make a selection of ten or a dozen that are quite distinct. If these were grouped in a bed in the open air during the summer, the result would be most satisfactory. Mr. Barron groups them in this way at Chiswick, and with the best possible effect. M. Victor Lemoine this spring announces a few new varieties among these, two or three in which the pink tints

have deepened to violet. We shall probably have an opportunity of seeing these in flower during the summer.—R. D.

AUCUBA SELF FERTILISED.

I NEVER remember having seen the common Aucuba so heavily laden with large scarlet berries as at present. The bushes indeed are completely weighed down with their crop of fruit. We find the Aucuba the best of all shrubs for planting under the shade of trees, as its strong fleshy roots enable it to live where other shrubs would starve. Being easily propagated, we have of late years substituted it for the common Laurel where a thick undergrowth or screen was needed in dense shade, and by planting a few of the male variety amongst the ordinary kinds, we find they set their blossoms most abundantly, and generally get a good crop of berries; but this season the winter having been mild, the berries have grown to a larger size than usual. Although hardy enough to withstand severe winters, their growth is evidently arrested by them; but this year, thanks to the genial season, our bushes are really beautiful. As an instance of what an accommodating shrub the Aucuba is, I may state that it may be safely removed at mid-summer or mid-winter. We have shifted it in all kinds of weathers, and have never lost one. Last summer we moved a quantity during the warmest weather in July from a very hot exposed situation to a shaded spot under large trees, and they are now in better condition than if they had remained undisturbed. The only thing I find them to dislike is the full glare of the sun. To have them in perfection they require shelter and shade; therefore they succeed where many sun-loving shrubs would fail. As regards the proportion of males to females, I may state that we have large clumps many yards in circumference of the common Aucuba with one plant of the male Aucuba in the centre, and our bushes are, as I have said, laden with fruit; but isolated bushes 10 yds. or 12 yds. off are only thinly sprinkled with berries, and at longer distances from the male variety they cease fruiting altogether with the exception of a few stray berries, probably the result of insect fertilisation. Therefore, if we wish for a perfect crop of berries without having recourse to artificial fertilisation, we must plant males about every 30 ft. apart among the ordinary form. Aucuba berries begin to colour late; in fact, they do not begin to colour until those of the Holly and other berry-bearing shrubs are past; nevertheless, they add quite a distinct charm to the shrubbery during the spring months.

Linton.

JAMES GROOM.

Azara microphylla.—This with me occupies a position on rather a dry bank, and has survived the intense frosts of 1879-80. I do not know whether it has been tried against a wall, but I imagine it would bear training, and cover a wall as well as the Myrtle or Pyracantha. The rich vanilla-like perfume of its small, but profuse, inconspicuous flowers greatly enhances its merit. Its sweetness has been wafted widely over the garden in which it grows, and has led to many enquiries being made concerning the source of so much sweetness.—W. INGRAM, *Belvoir*.

Arbutus procera.—A specimen of this, some 20 ft. in height, is now profusely laden with its greenish white Lily-of-the-Valley-like flowers near the Broad Walk at Kew. This Arbutus is stouter in growth and has larger foliage than the common Strawberry Tree (*A. Unedo*), and is remarkable for the way in which the outer bark cracks and eventually peels off, leaving nothing behind but the smooth mahogany-like inner bark. In an allied species (*A. Andrachne*) the bark also peels off, as in *procera*.—H. P.

Edraianthus dalmaticus.—If "F. C. L.'s" *Edraianthus* was healthy when received, it has simply gone back because too much care has been bestowed upon it. All our *Edraianthus*, which are still in their resting period, grow in open beds and borders fully exposed to the sun; some are in sandy loam, others in a peaty compost, and all are doing equally well.

They delight in a position where they can send down their roots by the side of the perpendicular stone slab edging in our beds, and under these circumstances it is not at all an unusual thing to see them attaining a diameter of 1 ft. and more. In pots in a frame or greenhouse the plants never grow as freely as when planted out in an appropriate position and left to take care of themselves. Whether placed on a rockery or grown in an open border, they require being fully exposed to the sun to flower well. Once established they will reproduce themselves freely from seed.—FROEBEL & CO., *Zurich*.

GARDEN FLORA.

PLATE CCCXXXIII.—BIGNONIA VENUSTA.*

THE Bignonias are handsome flowering plants, and principally evergreen twiners, although a limited number are low bushy shrubs. They are mostly indigenous to warm countries, the greater number being found in the western hemisphere, whilst a few come from the east. Out of some sixty or seventy known species, only comparatively few are adapted to the requirements of the general cultivator, and of these it may be said that they come under the head of neglected plants, as, with the exception of two or three kinds, they are rarely met with. Why, it would be difficult to say, for when fairly treated they are undoubtedly amongst the most beautiful of climbing plants. Possibly one cause of their want of popularity is the fact that most of the best sorts fail to flower freely if subjected to the over-hot, moist, and often too much shaded conditions of our modern plant stoves; on the contrary, I have always found them do best in an intermediate heat, subjected to all the sun and light it is possible to give, and not too much atmospheric moisture; under such treatment they are less prone to exuberant growth, and the shoots and foliage attain the solidity essential to the free production of flowers.

B. venusta, the subject of the annexed illustration, is truthfully represented as to form and colour, but want of room prevents its floriferous character being fully shown. When well grown it produces great wreaths of bloom, the individual bunches being continuously developed from the joints of the shoots so as to touch each other like a string of epaulets. It is an old plant, introduced over half a century ago from South America, and without over-estimating its merits it may truly be set down as superior to nine-tenths of the flowering subjects of modern introduction. Its season of blooming is from autumn up to the end of the year, more or less accelerated by the degree of temperature maintained. *B. Chamberlayni* is a very strong-growing kind, with yellow flowers that are very effective. It is well adapted for a lofty house. *B. littoralis* is a free growing, but not over vigorous sort, bearing pinkish red flowers. It is suitable for a moderate sized house in which vigorous growers would be too large. *B. argyrea* viscolescent to those who are fond of variegated foliage will be acceptable. It is a medium-growing kind. *B. magnifica*, a new species from Colombia, has large crimson flowers shaded with mauve and a pale yellow throat. *B. alba*, a white-bloomed species from Guiana, is also known under the name of *Jacaranda alba*. It is a small grower and bears pretty flowers.

Of kinds that will succeed in a cool greenhouse, and which are well worth growing, are the following: *B. Twoediana*, a yellow-flowered species possessing a medium habit of growth. A native of Buenos Ayres. With some this plant does not flower freely, but where it gets plenty

* Drawn from specimens furnished from Pendell Court, Bletchingley.

of sun it seldom disappoints the grower. *B. grandiflora*, a fine kind from China, bears orange red flowers. It is a vigorous grower and a handsome plant either in or out of flower. *B. (Tecoma) capensis* has yellow flowers and bright, clean-looking foliage. It is a moderate grower, and does not require much pruning. It blooms in summer. *B. speciosa* is a pink-flowered species from Uruguay, that blooms in the spring or early summer. It is not so robust in habit as some of the kinds, and therefore more suitable for a moderate-sized greenhouse. *B. caprolata* is a North American kind that I have found to succeed well in an airy, cool greenhouse, where it is very effective, but it will do out-of-doors. The flowers are reddish scarlet. *B. radicans*, a hardy kind, is likewise of North American origin. There is a large and also a small form of this, the latter the brightest in colour, which is reddish scarlet, the former being orange. Both the above are deciduous, and suitable for a south wall.

CULTURE AND POSITION.—All the species can be propagated either by layers or cuttings made of the young shoots or small pieces of the roots. Layers have the advantage of enabling larger plants to be obtained in a given time. These are secured by taking in spring some 6-in. or 7-in. pots, draining them well, and filling them with a mixture of peat and sand. Into this peg down the preceding season's shoots, which should be notched at the joint that is covered with soil. Keep the material moist, so as to encourage the formation of roots, which will be produced during the summer in sufficient quantities to admit of the layers being severed in the autumn, after which they should be given more pot room as required. Another season will give them size and strength enough to permit of their being planted out in the bed where they are to remain, pots or tubs being unsuitable for them. If to be increased from root cuttings, pieces should be selected about as thick as a quill; these should be cut into lengths of about 1 in. and inserted with the upper ends just above the soil, which ought to consist of fine sifted peat and sand in about equal proportions. A 6-in. pot is large enough to accommodate six or eight cuttings; they should be placed in an intermediate temperature, where they will soon form roots and make top growth also. The subsequent treatment required is similar to that necessary in the case of young stock raised from shoot cuttings. Where the latter mode of propagation is to be adopted, it is best to cut back an established plant about the end of February, which if in moderate warmth will soon push out young shoots. When these are 8 in. or 10 in. long, they should be taken off with a heel, without which many plants of the nature of these Bignonias do not strike freely. They must be put in pots filled with sand in the ordinary way, placed in a brisk heat, kept moist, close, and shaded, conditions under which they will soon form roots, when they must have additional pot-room as they require it until large enough for planting out where they are permanently to remain. They require a moderate space for their roots, but should not have too much room, especially the strongest growers, or they are apt to outgrow the space allotted to them, and they do not like over much cutting in; good fibrous peat, or a mixture of peat and loam, answers well for them.

T. BAINES.

Tulips from Cannes.—The Tulips upon which I made a few remarks at the scientific committee of the Royal Horticultural Society on March 29 were not exhibited by me, but by Miss Mangels, who sent them from Cannes. The small flowered, slender-leaved variety of *Tulipa precox*, with very narrow petals, I believe to be



BIGNONIA VENUSTA

T. Lorteti. It comes very close to *T. maculata*, which, though common in cultivation, has now, I believe, been found wild.—H. HARPUR CREWE.

GARDENERS' FRIENDS.

ICHNEUMONIDÆ.

ICHNEUMONS.—However strange it may appear, I think I may say without fear of contradiction that, humanly speaking, if it were not for these insects, there would soon cease to be any vegetation on the face of the earth. Probably no plants are exempt from the attacks of some insects, which are mainly kept in check by these most useful allies. We do what we can to reduce the numbers of aphides and the host of other insects which destroy the produce of our gardens and fields. Insectivorous animals and birds kill all they can find, but the number thus destroyed is

organ among the wasps and bees is known as a sting, and is constantly used as a weapon of defence and offence. In the ichneumons it is seldom used for these purposes, nor is it often suitable as a weapon, being in many cases very long and delicate; it is composed of five pieces, two of which form a sheath for the other three, which together form a boring or piercing instrument. One of these three pieces is nearly cylindrical, but has a deep groove reaching to its centre down its entire length; in this groove fit the other two pieces, which are very delicate, and are notched transversely near their points. They can be protruded beyond the other part in which they work with a sawing motion. Down the centre of this borer is an opening, through which the eggs are passed. When the insect is at rest the borer is inclosed by the two outer pieces, which form a sheath, and from which it is disengaged when the insect uses it. The length

some particular protection, which would prevent this ichneumon getting at them, unless provided with some special means for that purpose. Their long borers are used much in the same way as we would a bradawl, if the insect wishes to reach a grub which is boring into wood; to reach their victims hidden in cracks in trees or in the earth, the instrument is merely passed in until they are reached. Many ichneumons only attack certain insects, so that many kinds of insects have their special parasites; even those which are very useful to us, such as a small member of this family which destroys great numbers of aphides by laying its eggs within them, is in its turn preyed upon by grubs hatched from eggs laid in their grubs by a small insect belonging to a very nearly allied family, the Chalcididæ. This insect (Ceraphron Carpenteri) selects an aphid which has been already attacked by the little ichneumon, and deposits its eggs in the bodies of their grubs which are devouring the aphides. This is a good illustration of the truth of the old rhyme,

Great fleas have little fleas to worry and to bite 'em;
And little fleas have lesser still, and so on ad infinitum.

The grubs of the ichneumons feed upon the fleshy and fatty portions of their victims, avoiding the vital parts. In course of time the caterpillar or grub succumbs to the attacks of its parasites, which then turn into chrysalides, sometimes within the body. Some species, however, leave their old quarters and spin silken cocoons round themselves in which they undergo their transformations. Some species do not kill the caterpillar until it changes into a chrysalis, when it dies, and the grubs undergo their change within it. The cocoons formed by the grubs which leave the bodies of their victims are often loosely attached to one another by silken threads (fig. 5), and are frequently mistaken for the eggs of insects and destroyed as such, particularly if they are found near the dead body of some caterpillar. This is a double mistake, as caterpillars do not lay eggs, and, instead of destroying them, every care should be taken to preserve these little cocoons, which will each produce one of these most useful insects. Instead of making their cocoons separately, the grubs of some species all collect together on some neighbouring stalk and form a silken covering common to them all; within this in little cells, packed as tightly together as possible, they become chrysalides. Fig. 4 represents one of these nests, which I found attached to the flower-stalk of the common Plantain. One very small and common species (*Microgaster glomeratus*) lays its eggs in the caterpillars of the common large white Cabbage butterfly, and assists most materially in keeping this destructive insect in check; it only measures $\frac{1}{4}$ in. across its open wings. The dead bodies of aphides may be often found which have been attacked by ichneumons. They may always be known by their brown colour and globular, distended appearance; there is generally a round opening in their backs, through which the parasite has escaped. These smaller species much resemble the larger ones, except in the matter of size.

The ichneumons may often be found sitting on flowers, particularly unbelliferous ones, feeding on their nectar, and they have been observed feeding on honeydew with which leaves are often covered. They are remarkably active insects, flying and walking with great rapidity. When searching for grubs in which to lay their eggs they constantly move their antennæ in a very rapid manner, and their motions altogether suggest great haste and excitement. They vary considerably in colour, some being quite black, others black with red, yellow, or white markings, and others brown or yellow. Their antennæ are composed of a very variable num-



Fig. 1, *Trogus lutorius* (natural size); fig. 2, *Pimpla instigator* (natural size); fig. 3, *Paniscus testaceus* (natural size); fig. 4, Cocoon containing a number of chrysalides of an ichneumon; fig. 5, Cocoons of ichneumons.

insignificant when compared with that destroyed by these parasitic insects, which abound nearly everywhere, and attack other insects of all kinds, and sometimes in all stages of their existence. Some species attack the eggs, some the caterpillars or grubs, others the chrysalides or perfect insect. However secure one may fancy a caterpillar or grub, is ensconced in the gallery it is forming in the stem or bough of a tree, or however carefully it may be hidden in a fruit or gall, some of these ichneumons will find them out, and by the aid of their long ovipositors will deposit eggs in their bodies, from which in due time little grubs are hatched, which feed on their unfortunate victim, and eventually kill it. These ichneumons vary very much in size, from a large insect—*Trogus lutorius* (fig. 1)—to small ones, which are no larger than midges. The apex of the body in all members of this family is provided with an ovipositor. This

of this ovipositor varies very much in different species; in many it is short, remaining hidden in the body until brought into use; in others it is always protruding, and is sometimes three or four times the length of the insect. Those species in which this organ is short are parasitic in caterpillars, grubs, &c., which are not hidden so that the ichneumon cannot get at them. On finding a victim it settles upon it and thrusts its ovipositor through its skin and deposits an egg just under it. Some species lay several eggs within the same caterpillar (as many as sixty-seven have been known to be laid). Sometimes without settling on its prey the ichneumon will bend its body beneath itself until the point projects beyond its head; it then protrudes its ovipositor and pierces its victim. Those with the long ovipositors attack such caterpillars and grubs as bore into timber and trees, or, hidden in cracks in bark, live mostly underground, or have

ber of joints, some species having sixteen; in others as many as sixty have been counted; in those of some species there is a band of a paler colour near their middle. As before stated, these insects vary very much in size; their grubs are nearly cylindrical, white, soft, and fleshy; they are generally slightly curved and taper somewhat to each end; they are entirely destitute of legs. The head is furnished with a pair of very small sharp mandibles or jaws. The chrysalides are whitish, and through the skins in which they seem wrapped the limbs, &c., of the future insect are distinctly visible. The chrysalis is generally enclosed in a cocoon. The Ichneumonidae is one of the largest families among insects, and contains a great number of genera and species; all its members are parasitic. It is classed between the Cynipidae or gall flies, and the Chalcididae, a family of very small insects, which in their habits much resemble the ichneumons. The name ichneumon was given to these insects on account of their parasitical habits, after an animal of that name which was erroneously supposed to deposit its progeny within the bodies of crocodiles, which were destroyed by them. *Trogus lutorius* (fig. 1) is one of our largest and handsomest species. It attacks the caterpillars of the Death's-head moth and Privet hawk moth. The general colour of this insect is reddish yellow, but the upper half of the antennae, nearly all the head and thorax, and the end of the body are black; the wings are yellowish, with brownish veins. *Pimpla instigator* (fig. 2) is a common and very useful insect; it attacks the caterpillars of the common Cabbage butterfly and several moths. With the exception of the legs, which are reddish, it is entirely black; the veins of the wings are blackish. It, as well as some other members of this family, emits when handled a very unpleasant smell. It may be found during the summer and autumn. *Paniscus testaceus* (fig. 3) is a peculiarly shaped insect, its body being very narrow and flattened laterally, and is particularly deep towards the end. Its legs and antennae are very delicate. It is of a yellowish colour, and the wings are tinged with the same tint and are slightly iridescent.

G. S. S.

GARDEN DESIGN.

NATURAL LANDSCAPE WORK.

LANDSCAPE work may fairly be considered as a branch of horticulture perfectly distinct from gardening proper—a branch, indeed, the study of which, although important, has been deplorably neglected, whilst other branches have been brought to a high state of perfection. The reason is not far to seek; too many attempts have been made to distort Nature, which, so far as my experience goes, have resulted in failure. Flat surfaces, terrace upon terrace, dotted over systematically with trees and shrubs, repetition without end, straight roads and walks, bad statuary, or if ornamental misplaced—these all tend to bring landscape gardening into disrepute. True, the last few decades have produced men of good tastes who have been able to see the necessity of not opposing Nature, but rather of assisting her. Who can contemplate without regret the amount of capital squandered in the formation of that geometrical monstrosity yclept the Royal Horticultural Society's Garden, at South Kensington, with its terraces, its walks, its surrounding architecture, its scroll work in box, stone, and brick imitations of flower beds, &c.? First and foremost to be considered is the natural adaptability of any particular site for the purpose of landscape work. Let us take, for instance, an elevated portion of ground, sloping regularly or irregularly towards

the south; in very many cases the architect will place his building upon the highest point, or, what is nearly the same thing, but little removed from it; he will probably excavate but very little on the lower side or main front of the mansion; consequently the ground falls away too suddenly to be comfortable to walk upon; therefore the formation of a terrace with all its attendant evils is inevitable; the excavation of the forecourt and foundations not giving sufficient material to form a terrace of such dimensions that it may work itself out into the land beyond in a natural manner; what follows? The terrace is never satisfactory until a large quantity of material has been carted from a distance at great cost to make up the deficiency, the result being even then too artificial. Had the mansion been built a few feet lower, sufficient material would have been found for all necessary purposes, whilst the effect of lowering a portion of the ground in front would have given a natural and easy slope, and planting the high ground behind or forecourt front would have had the effect of causing an upper current which would have effectually carried off all the high winds. A large quantity of material on the spot is always of value in forming mounds for diversifying the surface and for planting in order to obtain privacy, especially in the case of such mansions as are near public roads. It may be said that planting without high ground would produce the upper current just mentioned, but it must be remembered that in that case we must wait a lifetime before we obtain practical results. I give this simply as a typical case, and conclude, therefore, that in order to obtain the best effects, both the architect and landscape gardener should consult together in reference to this most important matter. This is unfortunately too seldom the case, in consequence of which great difficulties are placed in the way of the latter. Very few architects have the necessary knowledge to enable them to arrive at correct conclusions in respect of landscape work, being too much used to that which is formal and measured, and having no practical acquaintance with trees and shrubs or the work in detail. Let us divide the consideration of this matter under the following heads: lawns, roads and paths, plantations, and the planting of single or specimen trees. I do not propose in these notes to enter into a practical account of the method of carrying out the work, but simply to consider the matter from the view of right positions.

Lawns.

A lawn to be effective should be ample and level in proportion as the surrounding ground is flat or gradually on the descent. Few things are more offensive to the eye than a level lawn formed upon sloping ground; it has the appearance of being tilted towards the house. Thus upon ground which falls away—say one in ten—the lawn may fairly have a fall of one in twenty and yet appear level from the windows. The central portion of the lawn should especially be made to conform in this respect with the ground beyond, as it does not admit of the same freedom in regard to planting as is the case with the ends, the space requiring to be free and open in order to have the most extensive views possible and being near the house, no obstruction of the necessary light should occur. With regard to the ends, undulations are most desirable, especial care being taken that as great an extent as is possible be within view. The rising ground should in all cases be as easy and natural as circumstances will allow, and as these elevated portions will in all probability be desirable sites for planting care should be exercised in regard to their position, the lower portions or vistas being arranged in such a manner that desirable views or objects should be distinctly

seen, as, for instance, natural groups of fine trees upon adjoining land and water, whether as portions of lakes or rivers. In the formation of the ends of a lawn it will not be so necessary to consider the ground beyond, and much more freedom can be used in planting. The ground may therefore be made to rise in certain parts, and this especially where it meets plantations, throwing a carpet of Grass well up in view of the windows, a most desirable feature when the levels will allow of its being done. Nothing is more natural than when the eye is carried through vistas quite away until it loses itself in the distance beyond, no perceptible edge intervening. In cases where a slope is imperative in consequence of the rapid fall of the ground, something should be done to screen the formal edge of the terrace. The conventional slope of two, or two and a half to one along the whole length of a terrace I consider unsightly in the extreme. I should much prefer running out the ends of the terrace as gradually as possible, in order that round-headed trees or shrubs might be planted upon them and some light ornamental structure placed along the centre, in every case draped with the most desirable evergreen and flowering climbers. This arrangement is particularly admissible in connection with certain styles of architecture. Steps may with propriety be formed in the slope leading to is lower level. This system generally involves extending the pleasure grounds somewhat beyond the usual limits, as some planting is required beyond the structure in order to break up the hollow; properly managed, however, very happy results may be arrived at. Terraces upon terraces with formal slopes are, to say the least of them, unnatural. Secondary lawns, that is those which are less in view of the house, and those out of view of the windows, should be treated with the greatest amount of freedom, the natural surface of the ground only being regulated in order to give extensive sweeps of unbroken turf. Except here and there by the most desirable forest trees intermingled with our most beautiful ornamental trees to give colour, they should by almost imperceptible gradations pass naturally on into wild woodlands or meadow. These portions of the pleasure grounds when bordered by streams or rivers may be made charmingly effective by the exercise of a little natural talent, as the formation of waterfalls, rockwork, &c. Sites may also be found upon them without in any way interfering with their natural beauty for such amusements as croquet, lawn tennis, &c. These departments, however, should be so placed that they in no way break up the natural sweeps of verdure from the most desirable points of view. The points especially necessary to be considered in the formation of lawns are first to dovetail them naturally into the grounds beyond to conceal art as far as practicable; secondly, to form extensive sweeps in the direction of desirable objects; and thirdly, to render them comfortable to walk upon, at the same time maintaining a naturally undulating surface.

Roads, paths, and forecourts.

From a landscape point of view the disposal of these is of the utmost importance. In no case, with the exception of the terrace walk proper or that which is usually made parallel to and near the mansion, is it desirable that they should be straight; neither should the curves be too abrupt; too great a length should never be seen running directly before the eye, either from the principal views from the mansion or any of the principal portions of the lawn; neither should they be seen for too great a length from their sides. They should be so arranged that they appear and disappear before and behind plantations, prominences, &c., and generally only the easiest curves should be visible. The lines which roads

and walks should take are those which open to the most interesting parts of the grounds and distant views; their number should be as limited as possible consistent with convenience, especially where the ground is well drained and accessible in all weathers, as it is much more pleasant to walk upon turf than gravel; it is, however, desirable that one circuitous walk should surround the outskirts of the lawn; it may be fringed with borders and plantations at the ends of the lawn, but quite hidden from the centre. The carriage entrance will be the principal, and in most cases the only necessary, road within the pleasure grounds proper; its curves should be especially easy. It should as far as possible follow the natural formation of the ground consistent with an easy gradient, involving no cuttings or embankments. It is not desirable that a carriage road should be seen from the house, except that portion which enters the forecourt, which is unavoidable; even that may be partially screened by judicious planting with overhanging trees. The forecourt should be ample, and in my opinion not disguised by making a plantation, as is often done, in the centre; this mode of treatment is only admissible when the forecourt is of large dimensions. The best form for a forecourt is an oval, or something approaching to that figure; never should it be round or square, except perhaps when surrounded by architecture, in which case rectangular forms are in character with the boundary walls. Thus it may be gathered that roads and walks should never be straight except in the case mentioned above; secondly, they should only be made where necessary; and, thirdly, so arranged that only well defined curves are visible.

Planting.

This important branch of the landscape gardener's art requires the most mature consideration, not only with regard to positions, but also with respect to the kinds of trees and shrubs used. Let us first consider the planting of lawns. Assuming the groundwork to have been carried out in accordance with the foregoing directions, that is, in a free and natural style, the central portion may with propriety have two or three trees planted upon it, only in the direction of objectionable objects from the principal windows of the mansion. The choice of suitable trees requires considerable judgment, only such being planted as will attain the necessary dimensions; for instance, I hold that any tree planted on a lawn should be seen in its entirety, and not, as is sometimes the case, with the top out of sight, except when viewed from near the windows and by uncomfortably looking upwards. To achieve this the distance at which a tree may properly be planted from the house must be considered, which will be in some measure regulated by the extent of the lawn. I am very much averse to planting too near mansions, and, in my opinion, from 60ft. to 80ft. is a reasonable distance; when planting in front the ends may be more nearly approached. The trees most suitable for this purpose are those possessing a spreading habit, amongst which may be mentioned as types Cedar of Lebanon and *C. atlantica*, *Abies Douglasii*, Beech, Horse Chestnuts, &c. When the lawn is of limited extent, *Cedrus Deodora*, *Abies canadensis*, *Pavia*, *Maples*, and similar trees may be substituted. Care should be taken that they triangulate. They should never be in a line from the principal points of view; neither is it desirable that they should assume a circular or amphitheatre-like form. They should be planted quite level with the turf, and not mounded up, as is too often the case. A broad expanse of turf should be seen round their base. Pyramidal trees are, in my opinion, most objectionable on lawns, and really only suitable for contrast in grouping.

A few round-headed shrubs may be planted on lawns somewhat near the ends, such as *Rhododendrons*, *Arbutus*, &c., and *Pampas Grass*, *Bamboos*, and similar plants may properly be introduced between trees where space admits, always being careful to avoid that most fatal of errors, overcrowding. In those instances where it has been necessary to resort to an architectural design to finish a lawn, in consequence of the height of the edge, irregular plantations of low-growing trees and shrubs should be formed beyond, making a secondary pleasure garden.

The grouping should include the most desirable evergreen and flowering trees and shrubs, and all wall surfaces should be covered with creepers. The planting should be on mounds sufficiently high to permit the tops to be seen without in any way interfering with the view beyond. Trees of a feathery character, as Birch, Willow, &c., may be sparsely intermixed; properly combined, the effect is excellent, and forms a pleasing finish to a lawn. This portion may be freely intersected with walks, and will afford excellent opportunities for the formation of borders where the most desirable herbaceous plants may be grown; also suitable positions for spring flowers on the grass, as *Snowdrops*, *Winter Aconites*, &c. Too much freedom, if judicious, cannot be exercised with regard to planting the ends of a lawn; there should be broad expanses of turf forming vistas, so as to carry the view uninterrupted in the direction of pleasing objects, as groups of trees, meadows, valleys, &c. The plantations should be irregular in form, produced by a series of natural curves, and placed on the high ground; they should be unlimited as to size, massiveness being especially desirable, giving as it does a feeling of privacy and security. Here the contrast of foliage and flower should be especially studied; no kind of tree or shrub will be objectionable if properly placed. This portion of the work well managed gives colour, extent, and nobility to the whole picture. Natural grouping should be especially aimed at in this part of the garden, such, for instance, as Beech, Holly, and Yew growing together in tangled mystery. Many instances of this may be seen in our native woods the effect of which is peculiarly charming. Flowering trees, as *Thorns*, *Laburnums*, *Cherries*, &c., above shrubs are beautiful objects during their blossoming period. Here, too, may be grouped some of the most beautiful Conifers, such kinds as the *Retinosporas*, *Yews*, *Thuja*s, and *Cypresses* being very desirable. Nearer the house masses of *Rhododendrons*, *Azaleas*, and other American plants may be advantageously planted. Generally speaking, these should be placed in nooks and sheltered positions, or at the margin of woods along water-courses, and similar positions where they are effective at all seasons. Carriage drives and forecourts may be freely dealt with in respect of planting.

Avenues may be desirable in some cases where the length of roadway is limited and the architecture of the mansion heavy and sombre. I am of opinion, however, that the instances are extremely rare where this mode of treatment is advisable. Avenues are too formal to harmonise with natural planting. To my mind the best way to deal with the matter is to make plantations at those points of the road where the curves are sharpest and well away from the road, taking care that vistas are formed by such planting. Well-defined portions and easy curves of the roadway should be open to view. Forest trees may be planted singly or in groups of not more than three in the more open places, always leaving broad sweeps of Grass perfectly free around them. Where a forecourt has been formed by excavation, the high ground may be utilised for massing Conifers and deciduous trees, giving

shelter from north or north-east winds, and in many cases shutting the house out from entrance lodges, public roads, &c. The sloping bank should be principally Grass, with irregular patches of *Cotoneaster*, *Hypericum*, and double *Gorse* near the top. Specimen ornamental trees may be planted on the Grass. This, however, should be sparingly done, using only those kinds which produce large spreading heads and whose habit is particularly free. Outer circle planting, that is beyond the garden proper, will depend principally upon the surroundings. It may in most cases be desirable to break up large expanses of Grass, and also produce contrasts. A few forest trees should be planted to give park-like effect and to hide objectionable objects. The position of these will be best determined from the lawn, and planting in groups of three or five is, in my opinion, the best method. Plantations may be formed of dark foliaged trees as a contrast to the forest trees beyond, which should be shut out, if necessary, by the most invisible fencing procurable. The choice of suitable trees and shrubs for planting operations is of the utmost importance; whilst for plantations those kinds which are round-headed or pyramidal in form may be effectively grouped. Those planted singly or in groups of three should always be of a spreading and free growth, and such as are of a feathery character. Noble trees, of which the Beech may be considered a type, are especially adapted for park-like effect. When three trees are planted in the form of a group the apex should be towards the house; this gives a more rounded form than would be the case if placed otherwise, and they should be of the same kind. Formality and repetition should be strenuously avoided. No two groups of planting should be similar within the same view. In short, variety and a studious imitation of Nature should be the aim of the landscape gardener. C. D.

BOTANIC GARDEN, VENICE.

THERE is not much land to spare for a botanic garden at Venice, yet some ninety years ago about two acres were so laid out at the south-west point of the Grand Canal. The climate is humid and warm, and it is only in very cold seasons that protection is required for even very delicate tropical plants. The garden is approached through an avenue of *Maiden-hair trees* (*Salsburia adiantifolia*), some 25 ft. or 30 ft. high. Plants are propagated in this garden as in a nursery; the superfluous stock is sold, and the money obtained in this way helps to defray the cost of keeping up the garden. Its most notable feature is the great variety of Cacti, which have been grown here ever since the garden was laid out. Prickly Pears received by the father of the present curator when only 5 in. high are now 24 ft. in height, and they seem still to be steadily, but slowly, growing. I also noticed a variegated Cactus with fronds alternately yellow and green, and bearing sweetly-scented blossoms. Several other Cacti have been seventy-five years in the garden. *Cactus inermis* is 12 ft. high and forty years old, and *C. tomentosus* some eighty years or so old. *Crotons* are well represented in this garden, and amongst them are some handsome new sorts, or, at least, some that I have not seen about London; there is also a good collection of Japanese plants. Many stones or slabs in the footpaths bear inscriptions, seeming like old memorial tablets from Venetian palaces and churches long gone. Of *Hollies* there are here more than fifty varieties, and some of them very pretty kinds, and there are said to be at least thirty varieties of *Oleander*. *Coniferae* and *Palms* are also plentiful. This garden is not, unfortunately, much visited by strangers, as the ripple of the Adriatic at this point is rather uncomfortable in a gondola, and it is not kept so neatly as one could desire, though it contains many objects of much interest to plant lovers.

G. W. SEPTIMUS PIERRE.

FLOWER GARDEN.

PLANTS IN FLOWER AT BROCKHURST.

THIS garden is at this time (April 8) now gay with Primroses of almost every shade of colour. Last year's seedlings have surpassed all previous efforts; they are grand in colour combined with size and form, some of them being equal to the finest varieties of the Chinese Primula. Fancy Polyanthus, too, are being improved upon year after year; gold-laced varieties are in strong force, there being no fewer than nineteen varieties of the best sorts. Narcissi are a show in themselves, the varieties enumerated below being the most conspicuous, especially the variety Horsfieldi, which is planted in clumps all over the garden. Some people, I believe, say that Empress is the finer flower of the two, but anyone who sees the two varieties grown side by side in this garden will, I feel certain, reverse that opinion. The most beautiful of the incomparabilis or Peerless Daffodil is, I think, the variety raised by the late Mr. Leeds (N. i. sulphureus Leeds).

Alonia vernalis
Androsace Lageri
Anemone nemorosa
a. rosea
a. plena
Robinsoniana
apennina
fulgens
Pulsatilla
ranunculoides
Arabis albidia
lucida var.
blepharophylla
Arnebia echioides
Aubrietia Bougainvillen
grandiflora
purpurea
Pellis perennis in var.
Cardamine chelidonia
pratensis
trifoliata
Campanula alpina
a. l'alba palustris
Corydonia sibirica
Corydalis conopseoides
c. alba
cava albiflora
ochroleuca
Dicentra spectabilis
Dodecatheon Meadia
Doronicum caucasicum
Clusi
Draba aizoides
Epimedium nigrum
Erica carnea
Erodium hymenodes
Fritillaria imperialis
Gentiana verna in pots
bavaria
Gemma coccineum fl.-pl.
rivale
Iberis gibraltarica hybridia
Prunella
saxatilis
superba
Lamium maculatum
Lepidium procumbens
Leucocoryn aestivalis
Lithospermum prostratum
Muscari botryoides
Myosotis dissitiflora
Weirleigh Surprise
Narcissus bicolor
Empress
h. Horsfieldi
cernuus
maximus
moschatius
minor
Pseudo-Narcissus
p.-grandipetens
brillifolius
l. Emperor
rugulobus
princeps
Didsbury.

Narcissus ovalvaris
incomparabilis
i. albus
i. minor
i. Barri
i. Frank Miles
i. Leeds
i. sulphureus
i. s. stellatus
i. s. Leeds
i. s. plenus
i. expansus
i. aurantius
i. a. plenus
olorus minor
o. plenus
o. rugulosus
biflorus
poeticus angustifolius
Tazetta orientalis
cupuloides verna
Orobis verna
v. fine colour
Phlox verna
Pulmonaria angustifolia
a. variegata
officinalis alba
sibirica
suscharata
Polygala Chamæbuxus pur-
purea
Potentilla speciosa
Prinula cashmeriana
cortisoides
decora
denticulata
d. analis
pulcherrima
intermedia in var.
Sieboldii
ruses
viscosa
villosa
v. alba
Sneulowskii alpina
Saxifraga aromatica
cordifolia
conferta
contraversa
Cymbalaria
Gmelini
leitevrens
musculides atro-purpurea
palmaria
Wallacei
Scilla bifolia
ancusa
sibirica
Trollius giganteus
Triteleia uniflora
Viola odorata
Munbyana
Vincas, in variety
Wallflowers

A. MOTTESHEAD.

THE SACHALIAN KNOTWEED.
(POLYGONUM SACHALINENSE.)

Now that beauty of form receives due appreciation, many plants formerly considered to be unattractive will probably find prominent places in our gardens. There are numerous hardy herbaceous perennials of noble and graceful growth that are well calculated to produce a sub-tropical effect, and, what is very desirable, they are permanent features, requiring no further trouble when once plant'd. Amongst these rank a few of the Polygonums, the chief being *P. cuspidatum*, a Japanese plant to which we have frequently alluded, and *P. sachalinense*, of which the annexed is a representation. It is much less known than *P. cuspidatum*; indeed, it is only within the past few years it has been known at all, and it has not yet been planted except in botanical gardens, though as a decorative plant it eclipses *P. cuspidatum*, being of much larger proportions, though the flowers, being greenish, are not so attractive. It reaches a height of from 10 ft. to 12 ft., and has ample leaves upwards of 1 ft. in length and bright green. It has a



Polygonum sachalinense (showing habit of growth).

striking appearance, either isolated on turf or in company with plants of a similar character, and no better subject could be employed for naturalisation in a semi-wild place, as it takes care of itself under any conditions. It grows luxuriantly in a moist subsoil, and hence a capital plant for the margins of artificial water. Sometimes both it and *P. cuspidatum* are apt to spread too much, and on this account they are unsuitable for small places, but in gardens in which room is no object, a group occupying say half-a-dozen square yards is not too much in order to show to advantage the stately port of this plant. It may be obtained from any of the large nurseries, and is readily propagated either by means of division or seeds. W. G.

GODETIAS AS BEDDING PLANTS.

BEAUTIFUL as many annuals are, they are too evanescent for bedding purposes, and with the exception of Stocks, Zinnias, and Asters, very few are used in that way; and yet the Godetias, of which there are several varieties, grow freely and succeed almost anywhere. One of the most noteworthy is *G. Whitneyi*, sent out some years ago

by Mr. Thompson, of Ipswich, and from this others have originated; the two best are Lady Albemarle and The Bride, the first-named having brilliant satiny magenta-coloured flowers, and the latter blooms of a rich creamy white. Planted and grown together, or the one as an edging to the other, their effect is most charming, especially when seen with the sun on them, as then their blossoms are fully expanded. These, when the plants are grown in good deep soil, measure at least 3 in. across, and are borne in great profusion; and the more so if the seed-pods are picked off as they form instead of being allowed to remain on, exhausting the plants. The best way to get Godetias to bloom early is to sow in the autumn; and, as they are perfectly hardy, this may be done in the open, either where they are to stand or in small patches in sheltered spots, whence in spring the strongest may be lifted with balls, and replanted in clumps in the borders, or in lines or rows in the beds. Being of a close, upright habit, they should not be more than about 9 in. apart, as then they get well together and form a fine mass. If grown in borders, they make the finest display in groups of three; and it is a great mistake to leave them thicker, as they only draw each other up, and

Plants for vases.—I have eight large (Malta stone) vases along the south front of my house; for years I have planted Pelargoniums in their centre, but last year I used Portulacas, and was pleased enough with the effect to be preparing to do the same this season, hoping for a drier and hotter summer. The almost continuous rain during the end of last summer prevented the Portulacas from flowering satisfactorily. I should, however, another wet season seem settling in, Pelargoniums or other plants might replace the Portulacas.—M. A. G., *Sheafham, Norfolk*.

have a weedy appearance. Those who have not the good fortune to have plants that have stood the winter should sow at once, and when up thin out well; and, to save any check in transplanting, it is advisable to sow where they are to remain; but before doing this the beds or sites in the borders where it is intended to have them should be deeply dug and heavily manured; as like most annuals, Godetias are fond of good living, and if they can get their roots well down, they continue in flower longer, and are more independent of water and better able to take care of themselves. Not only are Godetias fine for beds and borders, but they are equally valuable for pots, to embellish greenhouses or conservatories during early spring—a purpose for which they are well adapted, as also for sunny windows in rooms, where they make a great show. The proper time to sow, when wanted for such uses, is about the middle of August; and as soon as the plants are up they should be potted in 4½-in., three in a pot, and at the turn of the year, or a little later, shifted on into others about double the size. The best place to winter them is a cold house or frame where they can be kept well up to the glass, so as to have plenty of light and air to prevent them from drawing. As soon as they have filled their pots

with roots and are showing bloom, it will be a great help to them if they were supplied with weak liquid manure once or twice a week, or as often as they may require water to keep the soil moist. S. D.

Spring bulbs.—I am afraid some of the readers of THE GARDEN will think that our lists of bulbs are rather *de trop*, but the season is really so extraordinary that I send you a second list, which adds 80 without counting varieties to my list of 74 on March 5. Mr. Crewe also mentions 26 which are not in either of these, so we have a total of 180 species in flower between March 5 and April 15, which, I think, considering that monocotyledons only are included, is a remarkable number.

Allium neapolitanum, S. Europe
sp. Persia, a very curious species with bayonet-shaped leaves, triangular peduncle, and white flowers
Erythronium americanum sp. allied to this, but with pure white flowers not reflexed
Treibzi, Crete, Turkistan
Gelgi var. *lutea*, with plain leaves and yellow flowers
saxatile (Crete), unique in colour and very beautiful
sylvestris
Kesselringi (Turkistan), pure yellow, pretty
Orphanidesi, Greece
Hageri, Asia Minor
Krasnowskiyana, Turkistan. This proves to be a handsome and distinct species
Christiana, S. Europe
stellata, Himalayas cornuta
Ocutus-solis, S. France
Eichleri, Caucasus
Alberti, Turkistan
Fritillaria Imperialis var. *lutea*
This was such a rare species from Kashmir
persica
"kamschatkensis pallidiflora, Siberia
cirrhosa, Siberia
racemosa, Europe
pyrenaica, Europe
Melegaris
var. *alba*, Europe
latifolia, Europe. Some of the varieties of this plant which I had from M. Krelage, of Haarlem, so closely resemble *F. delphensis*, that I see no difference except in size between them.
Lycica, Asia Minor
acmopetala, Asia Minor

I think this selection includes all the best of the Narcissus which are really hardy and free-flowering, though, of course, there are many more varieties and many names which are not worth keeping.

**Xirolirion montanum*, Turkistan
Kolkapowskyia *xirolirionoides* (not worth growing), Turkistan
**Polygonatum biflorum*, U. S. America
P. latifolium, C. Europe
**Spiranthes convallarioides* Himalayas
Gladstolis Mulleri, C. Good Hope
Sparaxis tricolor, C. Good Hope
**Iris sussiana* (in frame), Persia
biflorus, Italy
pumila

Those marked * are not yet quite in bloom, but will be so by the time this list is printed.—H. J. ELWES.

Spiraea japonica as an edging.—This charming *Spiraea*, so well known as a pot plant, forms a good hardy edging, its fresh Fern-like foliage alone rendering it very beautiful. It makes an excellent edging for permanent beds, such as those for roses or hardy herbaceous plants. Its

foliage comes up early and continues in good condition throughout the season, and when covered with beautiful white flowers it is doubly attractive. It is readily increased by division of the roots, and when planted in good soil it will stand for several years with no other attention than that of keeping it clean in summer and giving it a top-dressing of rich soil or manure in winter.—J. G., Linton.

Lilies of the Valley in open-air beds.—These are now coming into full beauty, and few plants repay generous culture better than this exquisite little gem. Lilies of the Valley as usually seen are in thick masses and planted where the roots of trees rob them of what nourishment the soil possesses. The flowers are therefore small, and thin in consequence. But when planted thinly in rich soil fully exposed to sunshine, and where they receive an annual top-dressing of 3 in. or 4 in. of short rotten manure in autumn, they continue to strengthen, and to send up finer foliage and blooms until one would almost imagine that another variety has sprung up. The blooms are invaluable for indoor decoration, and a few lights put over a portion of the beds in March advance blooming considerably. They are flowers with which one never seems to be overstocked.—JAMES GROOM, Linton.

Lilium Wittel.—I have read with interest a note about this Lily by "Delta" in THE GARDEN (p. 249). I cannot, however, agree with him that *Lilium virginale* and L. Wittel are identical. "Delta" may possibly consider me to belong to that class of people who can trace differences where none really exist, but what I know myself is that no consideration will make me say or write anything but what I consider to be the truth. It is possible that the Japanese sketch may resemble the engraving given of L. Wittel, for usually sketches intended to represent L. virginale are really those of Wittel. Therefore I consider it probable that the Lilies offered may be L. aratum virginale. As for the name imperiale, this was given by Mr. Siebold, who considered it to be a variety of L. speciosum or L. auratum when he first introduced it to Leyden before it was sent to England, but the bulbs sent to Leyden died soon afterwards it was mentioned in Siebold's catalogue for 1860-61 as L. speciosum imperiale.—J. H. KRELAKE, Haarlem.

The Wood Anemone in good garden soil.—I was pleased lately to see the Wood Anemone—the common kind, as I suppose—large and full in the rich and overgrown borders of a neglected garden. We so often see the plant struggling and starved in woody places, that when grown like this it seems almost a new plant; or it may be there are several forms of it. The flowers struck me by their fullness and size in this respect, coming nearer to A. sylvestris in aspect.—V.

SHORT NOTES—FLOWER.

Honesty (*Lunaria biennis*).—Mr. Thomas Ba'lding, who grows this plant very well in the ungenial climate of London, kindly offers to give seeds of the plant that has so succeeded to any of your correspondents who desire it. His address is Henley Lodge, Clapham Common, Surrey.

Ixias.—I do not know whether these are much grown in open borders or not, but I rarely see them. Here in Somerset they stand our severest winters. I planted several dozen six years ago, and they come up stronger every year and flower well. They are planted in good, well drained soil; for the first two years I covered them with Cocoa-nut refuse, but since then they have no protection whatever.—J. C. C.

Anemones at Belvoir.—The present early and dry season has greatly favoured the growth and blooming of Anemones. A blanda was never more effective; A. fulgens followed, and has bloomed profusely and still presents a glowing mass of scarlet. A. apennina is now full beauty, its light blue, star-like flowers, associated with A. nemorosa plena, give an effect only obtainable with pure, fresh, and beautiful spring flowers.—W. I., Belvoir.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

DOUBLE German Wallflowers are now at their best; a few of their massive spikes, deep yellow and brown, have a fine effect in a jar of brown Lambeth pottery. A bountiful picking of Ribes is pretty in white china, and a low basket of the same holds *Pyrus Malus floribunda*. Branches of white Cherry stand in an upright vase of dark blue porcelain, and a capacious glass holds a large handful of Snowflake with its dark green leaves. Sweet Drier, now in perfect leaf, fills a large silver bowl with groups of the early variety of the Poet's Daffodil (*N. poeticus ornatus*)—a combination that fills the room with sweetness. A broad silver cup has flowers of the dwarf pale blue Crimean Iris, and a dark Venetian glass holds a happy mixture of the double white Wood Anemone and A. apennina, while a bunch of scarlet A. coronaria is a blaze of bright colour, another bunch of the same flower being of the purple and white colours. White and purple Fritillaries grouped together make a good table bouquet, and another is of the bright golden Hoop-petticoat Narcissus, the flowers kept rather asunder by a groundwork of twigs of Phillyrea. A well-flowered Gardenia is a handsome pot plant on a drawing-room table.

FLOWER GARDEN.

W. WILDSMITH, HECKFELD.

Dracenas.—Most of the varieties of *Dracena* are so tender as to be only suited for indoor decoration, but there are a few so hardy as to render them all but indispensable for open air use in the summer flower garden. The kinds to which I allude are D. australis, which has broad, bright green foliage; lineata, a sort with narrow green foliage; gracilis, a kind with very narrow striped green and brown foliage; and Veitchi, a species much like australis, but stiffer in the foliage, and therefore better able to withstand the force of the wind. For sub-tropical bedding arrangements these Dracenas are invaluable, and a very few plants serve for a large bed, as, owing to the recurved and drooping habit of some and the spiral and perfectly round form of others, in order to show them off to the best advantage it is necessary to give them plenty of space, nine or twelve good plants being ample to furnish a bed 12 ft. in diameter. Thus planted, and the ground beneath them carpeted either with *Sedum* acra elegans or Golden Thyme, no more beautiful sub-tropical effect could be desired. They also make capital lawn plants, and in warm, sheltered positions stand our average winters. Several large plants of them stood out here for years, but they all succumbed to the severe weather experienced in 1880 and 1881. They may be propagated at any season from seeds or cuttings. Ours are obtained by cutting up the old stems and corn-like roots into pieces of about 1 in. long; these are placed in pans of sandy soil just in the way in which Vines are propagated, and plunged in a brisk bottom heat, in which they quickly form roots and break into growth.

Summer bedding arrangements.—These at the present time demand all but a monopoly of attention as regards propagation, arrangement, and planting. Winter effect having to be considered as well as summer, in order to avoid much autumnal removal, every hardy plant anything like suitable is pressed into the service; thus to some extent excludes as unsuitable many plants which we should otherwise like to use, and in some degree robs the summer garden of its gaiety, but this loss is more than repaid by the extended season during which it is effective. Space will not admit of giving in detail all the arrangements now being made from the standpoint just alluded to, but the following treatment of a large circular bed may be taken as a fair example of the many ways in which hardy and tender bedders may

be planted in combination: It is edged with *Herniaria glabra*, green, and the groundwork, or divisional lines, which cut up the bed into smaller circular or oblong beds, consist of *Veronica inoana*, greyish white, the smaller angles being filled with *Ajuga reptans* purpurea, and the central and smaller beds as follows: In the centre is a large plant of *Phoridium tenax variegatum*, which is quite hardy here; this is surrounded by *Viola Blue Bell* and *Ageratum Cupid* in mixture. The oblong beds have for the centre small plants of *Cupressus erecta viridis*, and a surrounding line next the *Veronica* of *Coleus*, the centre being filled in with tricolor *Pelargonium Sophia Dumaresque*. The small circles have as centres small plants of *Retinospora pisifera aurea*; one half of them is filled with *Lobelia* of the *pumila* section, and the other half with *Alternantheras*. It will thus be seen that the whole of the framework of the bed, including the centre, is entirely composed of hardy plants, and therefore its conversion to a winter bed is an easy matter. Some of our beds have more, and others a less number of hardy plants than that here given, so that the bed just described may be accepted as about the average. When determining these arrangements and selecting plants for them, our preponderating thoughts are length of season during which the plants continue effective, the reducing of labour by propagation of tender kinds, and the saving of house room for other and more profitable purposes. Most of the plants which we use have from time to time been alluded to; among those now being planted are *Sedum glaucum*, *corcium*, and *acre elegans*, *Saxifraga rosularis* and *oppositifolia* major, *Cerastium arvense* and *tomentosum*, *Hebeverias*, *Sempervivums*, *Lamium maculatum aureum*, *Gold and Silver Thymes*, *Gnaphalium lanatum*, *Helichrysum plicatum*, *Veronica inoana* and *rupestris*, small shrubs, *Yuccas*, *Chamaepeuces* (Fish-bone Thistles), *Violas*, and *Calceolarias*.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Allamandas.—Where these have made very long straggling growth without showing flowers they may have their points nipped out; the shoots should then be trained regularly over the trellis, bringing the points low down. This will cause a quantity of the back eyes to break that in due time will show bloom. See that the plants are now liberally supplied weekly with manure water.

Bougainvillea glabra.—Keep the strongest shoots, which are those that must be depended on for flowering, in an erect position, as if allowed to droop they break back, which interferes with the blooming. Of all the hard-wooded stove plants that I have ever grown, this under pot culture, if allowed to get anything approaching dry at the root, has its blooming the most interfered with. If it gets a check in this way before the bloom is formed, the shoots usually do not extend further, but set a few flowers at the points in place of the long wreaths that are forthcoming when all goes well with the plant. Both this and *Allamandas* will stand manure water in a stronger state than most things, and to have them in the vigorous condition essential to profuse flowering, they must have it, as has been stated, weekly after the roots and top growth have begun to move freely.

Plants in small pots.—For the purposes of ordinary cultivation it is a great mistake to use larger pots than can be made to suffice either for flowering plants or for those that are grown for their effective foliage. In the case of the former, where too much root-room is allowed, it induces over extension of the shoots and foliage, and often a straggling condition collectively without proportionate increase in the quantity of flowers. Where larger pots are used for fine-leaved subjects than needful, their appearance is neither so attractive, nor are they so enduring, as gross, over-luxuriant foliage soon loses its bright, healthy look. In addition to these objections, where plants are so treated as to induce extraordinary develop-

ment, there is necessarily less room for variety; consequently in the potting operations that take place with the stock generally through the spring months it is well to give no more root-space than is requisite, trusting to the aid of surface manuring or liquid stimulants to keep the plants in a robust, healthy state. This particularly applies to such plants as are wholly or partially shaken out, and which have their soil renewed annually. Where plants are wanted for exhibition purposes, and size is an object, to some extent, this course may be departed from, especially when grown in thoroughly light-giving structures and kept close to the root conditions which directly check over-extension of the top growth. In the case of soft-wooded plants of quick growth a continuous supply of manure water at short intervals is indispensable at this season, and it must never be given too strong. For quick-growing plants like shrubby or herbaceous *Calceolarias*, *Cinerarias*, *Fuchsias*, *Pelargoniums*, *Hydrangeas*, *Petunias*, and tender annuals I have found no better plan when once the pots get thoroughly full of roots and the flowers formed than to use it continuously every time the soil requires moistening until the blooming is over. Hard-wooded greenhouse plants, such as *Azaleas*, *Aphelexis*, *Boronia*, *Acacias*, *Chorozemas*, *Correas*, *Daphnes*, *Myrtles*, *Eriostemons*, *Pimeleas*, *Polygalas*, *Pleasantas*, *Neriums*, *Hoveas*, and *Genistas*, at this season of the year when taxed with the development of their flowers or with shoot growth are greatly benefited either by manure water or the use of some solid fertiliser applied to the surface of the soil, which will not only assist the current season's bloom, but its effects will be still more apparent on the ensuing growth.

Seeding Primulas and Cinerarias.—Those who have really good strains of these useful plants, and who are desirous of saving seed which they can rely on, should select in the case of *Cinerarias* plants that possess the best form and colour of flower. Each plant possessing these properties should be isolated from the inferior stock whilst in bloom, as in this way only can seed that will produce flowers of the requisite stamp be secured. As regards *Primulas*, the later sowings made last year which have not been so much weakened by blooming as the earliest will be in the best state to seed freely; these should be set on a shelf or stage under the influence of strong light and sufficiently supplied with water, nipping out the successional flowers formed after enough for seed purposes have been secured.

Roses.—Tea Roses in pots that have been forced and flowering for some time will, if strong, yet keep on making wood that will yield flowers, but to have them of large size and sufficient in quantity the plants must be regularly and liberally fed with rich surface dressings. Where any falling off occurs, in this matter, after the growth will come too weak to flower; or if a portion of it does bloom, the produce will be thin and poor. It rarely happens that pot Tea Roses in the hands of private growers yield nearly the quantity of flowers of which they are capable, through want of liberal feeding. The nature of these Roses is to keep on all but continuously growing when in a temperature that admits of such taking place, but, unless they receive a regular and liberal supply of manure in either a solid or liquid form, they neither increase in size nor produce flowers in abundance. They require and will bear much more in the way of stimulants than is generally supposed, and so applied they have a much better effect than any quantity of solid matter added to the soil which they will bear at the time of potting. Where the plants are turned out in beds, and their roots have thus unrestricted space in which to extend, they naturally are better able to take care of themselves, but even in this case a free use of manure water will be found advantageous. Whether cultivated in pots or planted out, they should be regularly syringed every day to keep down red spider—not merely sprinkled in the way often thought sufficient, but letting them have water without stint, so as to drench the foliage. Where

Rose culture under glass is ever expected to be above mediocrity, there must be a ceaseless outlook for mildew, especially during this and the ensuing month, and wherever a curled leaf is seen sulphur should at once be applied.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Pines.—The weather being unusually bright, early-started Queens, now swelling rapidly, will take more generous food than can be given in dull, wet seasons. Keep the soil in a healthy growing state by the use of clarified liquid and guano water, and damp all available spaces after closing, which should be pretty early, so as to insure a high temperature from the afternoon sun with a corresponding degree of atmospheric moisture; but guard against much overhead syringing, as it encourages the growth of crowns and suckers, at all times prejudicial to the full development of the fruit. Endeavour to keep the bottom-heat steady at 90°, ventilate early when strong firing is needed to maintain a night temperature of 70°, gradually increase the air until about 1 p.m., and close in time for the afternoon sun to raise it to 90° or 95°. If any winter starters remain on hand give them the above treatment until they begin to colour, and then remove them to a dry, warm place to ripen. Examine the roots of plants intended for starting early in June, and, while guarding against injury from drought, induce a period of rest by withholding water for a short time and keep them moderately cool, particularly through the night.

Successions.—Where strong bottom-heat is obtained from fermenting materials, spring-potted plants soon fill their pots with roots and require shifting on. To carry on the system of keeping small batches in advance of each other always have materials of all kinds dry and ready for use at any time, and never on any account shift a plant into a larger pot unless its roots are in a moist state, as no amount of after-watering will ever penetrate a hard, dry ball when it comes embedded in the rough, turfy soil adapted to its future growth. Keep all young stock near the glass, shade from very bright sunshine, and give plenty of air to prevent them from becoming drawn into weakly growth.

Orchard houses.—When the stoning process is complete make the final thinning, bearing in mind that a light crop of fine fruit gives more satisfaction than a heavy one. Always give the preference to Peaches and Nectarines which point to the sun or can be coaxed into doing so, otherwise the stalk instead of the apex will receive the colour so much admired, but not always attained. A general pinching of all the strong shoots will now be beneficial to the rapidly swelling fruit, but weak ones will be best left alone, as the only wood bud which they make is at the point, and stopping would render the shoot useless for another year. Good syringing and liberal feeding must have daily attention, and sharper forcing may be indulged in by day, particularly when the house can be closed with plenty of solar heat and moisture, but hard forcing is not advised, as it invariably ends in pale watery apologies for Peaches which nobody thinks of eating. It is understood that the house must be closed every afternoon for the attainment of size, but night air should be given, and the temperature should range from 56° to 58° at banking time, and 50° in the morning, with a steady rise to 65° or 70° by day.

Late houses.—If the trees in late houses were clean and in good condition, the "set" of fruit will be all that can be desired, as the days have been brilliant, and although the nights have been cold, we have not had occasion to light a single fire. With such hopeful prospects, lose no time in giving relief by timely thinning down to within a moderate percentage of the intended crop. Disbud by degrees, use water freely, always warm if attainable; feed with weak liquid manure for the present, and aim at a firm, sturdy growth by giving plenty of air through the early part of the

day, and by closing in time for the water from the last syringing to dry off the foliage before night-fall. If fires are available, be ever on the watch, as a severe frost might injure the young fruit where blossoms would escape. Where Plums or Cherries are grown with the Peaches, they will do best in the coolest and most airy part of the house, as a close, moist atmosphere often does more mischief than dry frost. Fires require the warmest end, and Pears, where space is limited, may be plunged on a warm border out-of-doors when the fruit begins to swell and there is no longer danger from spring frosts. Look well to pot Strawberries on the side shelves, and keep them well fed and syringed, as it is to their culture that we are invariably indebted for the first appearance of spider.

Cherries.—As soon as the stoning process is complete and the fruit shows signs of colouring discontinue wetting the trees with the syringe, and maintain a free circulation of air to prevent condensation or the presence of stagnant moisture, otherwise a large percentage of the finest fruit will crack and become useless either for present use or for hanging on the trees for a considerable time after it is ripe. If very early ripening is an object a little more warmth may be given through the day in preference to making any alteration through the night, but unless this is really necessary the same steady mode of culture which has been hitherto followed will give the best result. Examine the borders and if sufficiently wet to finish the fruit mulch with some dry, non-conducting material to keep in moisture; but if, on the other hand, they are likely to require another supply, choose a fine bright morning for giving the needed quantity at the mean temperature of the house. See that the trees are quite free from aphids, as smoking cannot be resorted to when the fruit is in daily use. The down leaders, stop side shoots to form spurs, and see that strong-growing late kinds which are expected to hang are regularly and evenly clothed with foliage without being in any way crowded. Follow the usual routine in late houses, always bearing in mind that a low night temperature and an abundance of air by day are the first elements of success. Give the trees plenty of water, and syringe regularly up to the time of colouring. Keep grubs in check by picking and smoke for green-fly.

Melons.—Early Melons now swelling fast will require liberal feeding with warm liquid until they have attained their full size and show signs of changing for ripening, when a moderate quantity of pure water to prevent flagging will keep them going and improve their flavour. If the plants are well cropped, lateral growths will no longer be troublesome, and as the size and quality of the fruit will depend upon the health of the old foliage, this must be kept clean and free from insects by copious syringing every afternoon at closing time. Morning syringing in light, bright houses must now be given up, otherwise the foliage will scald; but all paths, walls, and surfaces may be well damped with warm water as soon as the morning heat begins to rise. Ventilate early to allow moisture to dry off the foliage, then gradually raise the heat to 85° or 90° with sun; close at these figures, and descend to 70° for the night. Grow on successions with plenty of heat, air, and water, but carefully avoid producing a gross habit by feeding until after the fruit is set and swelling. Keep the glass clean, never shade after the plants get established, thin out and train the young growths, also remove male blossoms, and allow a wild, abandoned style of growth during the time the fruit is setting. The end of this month is a good time to make up manure beds in the frame ground for the growth of a summer crop of Melons, and as a steady heat is of the greatest importance, let the manure and leaves be well worked and fermented before they are put together. Build the bed just large enough to receive the frame, make it very firm, and protect from the weather. When the heat begins to decline and approaches 90°, prepare the hills in the usual way, always bearing in mind that the strong roots should be prevented from going down into the manure by the use of large sods of fresh

turf laid Grass-side downwards along the centre of the bed. To economise compost and to facilitate feeding, place two broad planks on their edges and 2 ft. apart longitudinally on the sods; fill loosely with compost, beat firmly when warmed through, and turn out the young plants 12 in. apart.

KITCHEN GARDEN.

R. GILBERT, BURGHELY.

VEGETABLE MARROWS, ridge Cucumbers, and Gherkins—all useful vegetables—should just now claim attention. We make trenches 8 ft. wide and 1 ft. deep, building up the soil at the edges of the trench and filling it up with old material used for Seakale and Rhubarb forcing in the spring. Mixing with this a few loads of fresh manure from the stable soon gives the whole mass a nice gentle heat. We then earth it over from each side of the trench, and it is ready for hand-lights placed in the centre. I always sow the seed about the first week in May, taking the nurserymen's advice to sow thick and thin early. Early Potatoes now showing above ground should be earthed over to keep them safe from frost; when caught and blackened they never turn out so good a crop. The frost seems to paralyse and does them much injury. Turnips, Spinach, Parsley, Brussels Sprouts, and a pinch of Cabbage seed may now be sown, the Brussels Sprouts being for late use, but all spring Broccoli keep in the seed store until the beginning of May. Beet should now be sown; also make successional sowings of Peas. Broad Beans should be sown according to the demand. Witloof sow at once if wanted, but that here is very rarely. The ground lately occupied with Broccoli should now be made ready for Celery by taking out the trenches. Lettuces may be planted on the ridges. Well manure the trenches and dig them up a good depth if the soil admits of it, and by the time the plants are ready the soil will be well pulverised through the action of the weather. Mustard and Cress, Radishes, &c., sow in accordance with the demand.

NOTES OF THE WEEK.

APPLES IN FLOWER.—Duchess of Oldenburg, Echlinville, Early Julien, Tower of Glamis, and Stone's Apple are among the kinds that are flowering best this year in Kent. This speaks well for their fitness for our climate generally.

The next meeting of the Royal Horticultural Society at South Kensington promises to be exceptionally attractive, for, in addition to the show of the Auricula Society, there will be other numerous exhibits, notably a fine collection of Clematis from Mr. Noble's nursery at Bagshot.

HARDY PLANTS in flower at the present time in the Hale Farm Nursery, Tottenham, include the pretty little Iris cristata, the true *I. verna*, *Hellonias* bullata, *Hesperochiron pumilus* and *californicus* (two pretty dwarf alpine from California), *Epigaea repens*, *Tulipa Greigi*, *Anemone Robinsoniana*, besides numerous Fritillaries and Narcissi, including among the latter *N. triandrus* and varieties.

KINGCUPS OR MARSH MARIGOLDS.—Mr. Sharman has been at the trouble of gathering some of these for us in the meadows. Truly they are among our bravest flowers. So common, there is no need to grow them; but the various double forms of this plant, of which there are several, are really worth attention as garden flowers, and suited for moist spots near water or even a moist border.

THE DOUBLE WISTARIA.—The American papers have misled us about this plant, trustworthy as they are. The figures published in one or two were not justified by anything the plant shows in this country. It is a poor distorted flower, not worthy of being mentioned at the

same time with the fine single form. We went down to Woking to see it with the view of figuring it ourselves, but on seeing it resolved not to do so. The figure published in this country is, like the American figures that first called attention to the plant, false. The plant is, in fact, a fraud.

ARABIS AUBRIETOIDES.—The chief characteristic of this rock garden plant, which has only recently come into cultivation, is the delicacy of tone in the blossoms—a faint rose-pink; otherwise it much resembles the common *Arabis* or some of the *Aubrietias*. It is easily grown apparently, and flowers freely and continuously judging by the plant of it now in flower on the rockery at Kew, where it does not seem to have had any special attention, except planting it in a well drained spot. We have only seen it at Kew, therefore presume that it is not much known yet. M. Froebel, of Zurich, we believe, has it for sale.

GENISTA PRÆCOX.—Under this name there is an uncommonly attractive shrub now in full flower on the rock garden at the Horticultural Garden at Chiswick. It is about a yard high, very twiggy, forming a dense rounded mass. Every branch is completely wreathed with small lemon-yellow blossoms, which, by their numbers, have a very showy effect. It is one of the best of all the early-flowering Genistas or Cytisuses, and a valuable plant in any garden. We are at a loss, however, to account for the name, for we have failed to find it authenticated, and it does not occur in catalogues.

THE WHITE ARABIS ON ROOFS.—In the village of Totteridge, near London, we were greatly surprised the other day to see in the furrows of a tiled cottage a goodly number of the common white *Arabis* (*A. albidia*) growing freely in various stages, and flowering well. Accustomed, as we are, to see Stonecrop, House-leek, and such plants on roofs, we did not expect to see the white *Arabis* quite so happy on them. It was not an old roof; the plant was strongest in the furrows. Apparently a seedling had got established on the roof, and spread its kind over the rest.

AKELIA QUINATA at Kew.—We have not seen anything more beautiful or quaint in its way than this plant on the brick wall at Kew, where it is now in flower. The distinct and graceful foliage, and the beautiful, though quiet, colour of the flowers all tend to make it charming in such a position. It is one of the plants that should not be treated as a curiosity merely, as we fear it sometimes is, but placed where its beauty may be seen, as in this case. It would also adorn a slender arch very fittingly, spreading from a near wall over such; there are many plants and climbers to which the same words apply. Their beauty is half lost, because no thoughtful planter has seen the need not merely to plant them to secure their existence, but to place them so that their beauty of flower or leaf or foliage may tell its story best.

SCILLA AMGENA.—The true plant answering to this name is one of the most charming of all spring flowers, and now that its Siberian ally (*S. sibirica*) is over, it is the brightest of bulbous plants in flower. In order to see it in perfection it needs to be seen in such a bold mass as is now in full beauty in Messrs. Barr and Sugden's grounds, at Tooting, where it forms one of the chief attractions. This mass is growing on the sunny side of a hedge in a bed of light soil, and, being two or three yards square, the glowing ultramarine blue of the flowers is strikingly brilliant. The character that at once distinguishes this from any other *Scilla* is the conspicuous pale green boss in the centre of the

flower. The broad green foliage, too, is handsome, and sets off the flowers to advantage, but the leaves invariably have decayed tips, caused by cold in early spring. The place for this beautiful plant is not a bleak, bare border, but a snug, partially-shaded nook embowered in foliage, where it could enjoy such warmth as a March sun gives, yet be sheltered from the cutting easterly winds. It is scarcely possible to overrate the value and importance of this Squill as a garden flower, yet, strange to say, it is comparatively little known.

BARRENWORTS (*Epimediums*).—Of these Mr. Stevens brings us a selection from the collection of them which he grows at Byfleet. They comprise some really beautiful flowers, the colour in some being a deep crimson-red, in others pure white, while some are white flushed with purple. The names of them are—*E. alpinum* and its variety *rubrum*, *Muschianum*, *luteum*, *pinnatum*, *sulphureum*, *Colchicum*, *niveum*, *purpureum*, *Skariso*, *ochroleucum*, *candidum*, *Rawsoni*, *violaceum*, *nigrum*, *versicolor*, and *pteroceras*. When well grown these Barrenworts are very fine plants, and they never seem to thrive so well as in a deep, moist, peaty soil in a sheltered, partially shaded spot, such as could be found in most gardens. Besides their pretty flowers their foliage is handsome, being when young of a bronzy hue, and it harmonises charmingly with the flowers in a cut state.

THE CHINESE PEAR at Kew (*Pyrus spectabilis*).—Long as we have known this fine tree, we have never had so much pleasure from it as during the present year at Kew, owing to the profusion in which the beautiful blooms have been produced. In the north of London we have seen trees not so satisfactory, owing probably to the coldness of the soil, which does not allow them to ripen so well. It would be real gardening to place a group of this tree so that it might be happy in the landscape for a generation or two. Such a group should be placed, so that, as regards its surroundings, it would at once look well and receive some protection from prevailing winds that might hurt its bloom—we mean so placed as regards the neighbouring groves that it would have some shelter while being quite free from troublesome neighbours at the root or above.

MAGNOLIA CONSPICUA and **SOU LANGRANA**.—These are now at their best, every tip being weighed down with large cup-shaped flowers. *M. conspicua*, white inside and out, is rather the earliest. *M. Soulangiana* is beautifully white inside and purplish on the outside. These *Magnolias* should be planted as single specimens on the Grass in some sheltered recess backed up by dark evergreens. We have a large spreading tree of *M. Soulangiana* with some thousands of blooms on it; its branches rest on the turf, from which spring up *Daffodils* and other bulbs and now a regular bed of lovely pink *Cardamine* is in full flower there; as these die away the foliage of the *Magnolia* becomes fully expanded and covers all with a mantle of fresh verdure. A few *Foxgloves* with their towering spikes run up through the tips of the branches in summer and look very pretty.—*J. G., Linton.*

MARICA GRACILIS.—Considering the extreme beauty of the flowers of this plant and those of its allies, it is unfortunate that they are so fleeting, scarcely remaining expanded more than a day, a circumstance that has, doubtless, militated against the popularity of the different kinds of *Marica* as general garden plants. In one of the stoves at Kew there are now some fair sized plants of *M. gracilis* and *M. corulea* in beautiful bloom. Both have flowers about 3 in. across, in shape like those of *Kämpfer's*

Iris, produced on slender stems overtopping the long graceful foliage. The “falls” in *M. gracilis* are pure ivory-white, affording a striking contrast with the small inner petals, which are of a rich corulean hue, barred transversely with cinnamon-red. In *M. corulea* the flowers are of a uniform purplish blue, very delicate and pretty. These *Maricas* are of the simplest possible culture, as, indeed, are all others belonging to the tribe. They like a moderately warm, moist atmosphere to grow in, and when once well established in good sized pots do not like to be disturbed; indeed, they flower all the better when pot-bound. Though their blossoms are so fugitive, they are produced continuously almost throughout the summer; therefore, they are for a long time attractive.

OBITUARY.

THE REV. J. G. NELSON.—It was only in our last issue we had to acknowledge the receipt of a beautiful collection of the finer and rarer *Narcissi* from Mr. Nelson's garden at Aldborough Rectory, in Norfolk, and now have the sad duty of announcing the death of one of the best known and most universally esteemed of our true gardeners. Mr. Nelson's garden has long been the home of a fine collection of hardy flowers, which he was always happy to share with lovers of the same things throughout the country. Mr. Nelson came of a gardening family, so to say, his father being a most excellent gardener. We learned the sad news in the first case from Mr. Allan, of Gunton, who says it has “thrown a great gloom over the neighbourhood. We all felt that we had a dear and personal friend.” Such will be the feeling of many of the readers of *THE GARDEN* to whom Mr. Nelson was well known. He was born July 14, 1818, and died April 14, 1882. He was the eldest son of the Rev. John Nelson, who was for forty-two years rector of Winter-ton with East Somerton, in Norfolk, the raiser of *Phlox Nelsoni*, and many good *Auriculas* and *Primulas*, which are now in cultivation under various names, also some good vegetables, among which is a *Pea* called *Vanguard*. The late Mr. Nelson was a man of sound judgment, and very patient and painstaking in everything which he undertook. He was the raiser of some very good plants, among which may be mentioned some of the best varieties of the mossy section of *Phloxes*, as well as *Lachenalia Nelsoni* and others, also some good *Narcissi* and hardy perennials. He was altogether, as has been said, an accomplished gardener, and it will be felt that his death is a great loss to horticulture.

Since the above was in print Mr. Allan writes to us again as follows:—

“We had a proof of how much he was beloved and respected by all classes by the number of people who attended his funeral, not only from his own parish, where he had been for twenty-two years rector, but also from long distances. After having the honour of his friendship for upwards of fifteen years, I shall miss the stalwart figure, genial face, warm heart, and liberal hand, that was always ready to give portions of his choicest floral treasures to anyone fond of flowers. He has left his garden in full beauty—thousands of *Narcissi* being in bloom, and hosts of other flowering gems only met with in the gardens of enthusiastic plant lovers such as Mr. Nelson was.”

MR. THOMAS BAYLISS, seedsman and florist, Pennfields, Wolverhampton, met with a fatal accident the other day at Prestfield Junction, on the Great Western Railway. The deceased had booked for Dudley, and as the train was coming into the station he walked on to the next line of metals to go round the end of the train. Just then a fast goods train, from London to Birkenhead, came up, and he was knocked down and killed.

CHARLES DARWIN.—We regret to learn, as we are going to press, of the death of Mr. Charles Robert Darwin, who has long worked, among

other subjects, in the cause of botany and horticulture. A biographical account of Mr. Darwin, accompanied by a portrait, appeared in Vol. VIII. of *THE GARDEN*. He was in his 74th year, having been born on February 12, 1809.

THE ASPARAGUS COMPETITION.

The following are the prizes offered for the competition of the present year, which will take place in the Royal Horticultural Gardens at South Kensington on Tuesday, May 23.

PRIZES FOR GARDENERS IN PRIVATE PLACES, AMATEURS, AND OTHERS NOT GROWERS FOR MARKET.

For the best bundle of Asparagus grown by the exhibitor: 1st prize, £4; 2nd, £2 10s.; 3rd, £1 10s.; 4th, £1. The bundle of Asparagus is to consist of eighty heads. Prizes will not be given where, in the opinion of the judge, there is no merit. The Asparagus must be free of earth, and the bundles will be opened by the judges in all cases where they think it well to do so. No imperfect or “double” heads will count.

For the best fifty heads grown by the exhibitor, £2 10s.; second prize, £1 10s.; third prize, 15s.

For the best twenty-five heads grown by the exhibitor, £1 10s.; 2nd, £1; 3rd, 10s.

PRIZES FOR MARKET GROWERS.—*For the market grower who shall exhibit the best three bundles, grown by the exhibitor, each containing one hundred heads,* £5 5s. This prize is offered by Sir Henry Thompson. 2nd prize, £3 3s., offered by Samuel Spalding, Esq.

CLAREMONT.—Mr. Edward Burrell, late foreman at Castle Ashby Gardens, Northampton, has been appointed gardener to H.R.H. Prince Leopold at Claremont.

ANTS in Peach houses.—Let “Amateur” take a few common closed jam pots and plunge them to the rim in the border of his Peach house. Put into each about an inch of treacle, and he will soon find the ants decrease in number.—*J. A.*

White-flowered Myosotis dissitiflora.—Is this a new plant? From a lot of *M. dissitiflora* I sowed last year I have a number of large plants of the pure white kind, in all respects like the other except in colour. I prefer the blue. Is there not also a white-flowered variety of *M. palustris*?—*J. S. W.*

Plant exchanges (*S. L.*).—If you will prepare, as you suggest, a list of specialists, we will be glad to publish it, or otherwise assist you in what you have in view; but there are reasons why we should not open our columns for the purposes of plant exchanges.

Seed growing.—Can any reader of *THE GARDEN* inform me what is the average yield per acre of Cress, Radish, and Cabbage seed? also average wholesale price which I should be likely to obtain for it? Would it be difficult to dispose of a large quantity? Any hints as to management would also be thankfully received.—*A SMALL FARMER.*

Names of plants.—*W. M. S.*—1, *Phlebotomum aureum*; 2, *Begonia semperflorens*; 3, *Brumfelsia* (*Franciscana*) *calycina*.—*F. B.*, *Boney Tracey*.—*Chrysanthemum frutescens* variety.—*E. Molyneux*.—1, *Berberis ulmifolia*; 2, *Anemone ranunculoides* fl. pl.; 3, *Iris pumila*; 4, *Saxifraga cespitosa* variety.—*D.*—We are unable to name the *Tulip* you send.—*J. R. W.*—Apparently *Oncidium phyllanthoides*.—*F. F.*, *Edwards*.—If you will send a larger piece of your plant we will endeavour to name it for you.

—*W. W.*—A variety of *Begonia heracleifolia*.—*G. J.*—1, *Giboulia cordifolia*; 2, *Amelanchier ovalis*.—*H. E. B.*—*Anemone pavonia* fl. pl.—*H. H.*—It is impossible to accurately name the *Ivies* from such scraps as you send.—*G. L. M.*—*Dendrobium chrysotoxum* (yellow); the other *D. bigibulum*.—*J. M.*—*Sambucus racemosa* (scarlet-berried Elder).—*J. C. Ford*.—Labels have become detached from the specimens, which are *Yanda undata*, *Dendrobium Fierardi*, and *Maxillaria luteo-alba*.—(Without name of sender).—1, *Cattleya intermedia*; 2, *Dendrobium aggregatum*; 3, *Oncidium nudum*, if the round lent sent in the box belongs to it; 4, *Dendrobium Farmeri*.—*W. Thomas*.—1, *Pteris cretica*; 2, *Oncidium japonicum*; 3, *Asplenium Adnigrum-nigrum*; 4, apparently *Blechnum occidentale*.—*A. W. H.*—1, cannot name without fertile root; 2, *Adiantum decursum*; 3, *A. reniforme*; 4, *Nipholobus lingua*.—*G. A. B.*—*Oncidium leucociliatum*.

No. 545. SATURDAY, APRIL 29, 1882. Vol. XXI.

"This is an Art
Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare.*

TREE-STUMPS IN THE NEW ROCK GARDEN AT KEW.

WE regret to notice a large number of these collected for use in the new rock garden, and strongly advise those responsible for its design and formation not to use them. Our experience is this, as regards tree-stumps of any kind, that we never saw any good come of their use under any circumstances in connection with the rock garden, while we have seen much evil. The objections to them are their decaying and unstable character. Everything in such a garden should be firm as a rock. Snow, rain, wind, or the settling of the ground should all tend to improve and moss over the surface with flowers, but in the presence of roots nothing of the kind can occur. Then, as regards vermin, roots are very objectionable; they give the best protection in their many interstices and in the dry-rot which soon takes place. Roots, too, are wrong artistically. Rock gardens are not built for herbs that can be grown on any border, but for the choicer alpine flowers from the higher mountains, where no tree has a place, and where assuredly one never sees alpine plants in connection with large tree-stumps.

If tree roots have any just place at all in gardens it is for wild Vines or Clematides, or some friendly climbing or creeping plants that quickly cover their nakedness; but we are not sure that they have any fitting use at all in gardens, having never seen any happy result therefrom. There are plenty of stones at Kew to give all the good effect that could be desired, and all the situations desirable for the plants if they are used fittingly; and there can be no need to mix them up with these terrible *chevaux de frise* of old roots, which are wrong in every way, both as regards effect and cultivation. Who could place an alpine flower among these with any hope of its finding the kind of conditions which it requires? The thing is impossible. The right way, and that which is being gradually adopted at last, is placing these flowers, like others, in a deep, moist soil, the old idea of the pocket and the dusty, erect heap of burrs, varied by roots, clinkers, &c., has died out, as it certainly ought to do. This question ought to be beyond all discussion, for we have already a good type in more than one garden. If we had not, the grey rocks on the downs, the groups of rocks in Kent, or Derbyshire, or Westmoreland should teach us. Some of the more recently formed bits in Mr. James Backhouse's garden, at York, are perfect; Mr. Whitehead's rock garden, quite near London, is also an immense improvement on the common type, in accepting the idea of rocky ground rather than the impossible piles described above, but still it is too stony in parts. Mr. Hammond's we hear a very good account of, but we have not seen it; the best efforts in this way ought to be seen by anybody forming such a rock garden as that at Kew, and one of the first results would be that they would never seek to place a tree-stump anywhere in it or near it.

In the present state of our gardening it is desirable that anything done in this way at Kew ought to be rightly and tastefully done. We offer these suggestions in no carping spirit, but simply in the interest of gardening. Such an extensive piece of rock gardening ought to be

thoughtfully and quietly done—piece by piece; the formation and planting of each portion should be done to suit some important type of alpine vegetation, and also considered in relation to the surroundings. In all such works there is room for great and charming variety, yet the tendency always has been to make them alike in all their parts as regards both plants and general effect, ending in monotony.

AURICULAS AND POLYANTHUSES.

THE season has again come round when Auriculas and Polyanthuses attract attention for the moment. The fashionable world crowded to see the show at the Horticultural Society's Gardens on Tuesday last, and next Tuesday the great room at the Manchester Town Hall will be again crowded to see the stages covered with these true florists' flowers.

Time was when shows of this sort were held all over the country, and when a bulky volume was published annually giving accounts of them, together with a careful analysis of the winning flowers. The "Account of the different Auricula and Tulip shows held in Lancashire, Cheshire, and Yorkshire, and other parts of the Kingdom in 1823" contains 104 pages of closely printed records, that for Raunculus, Pink, and Carnation shows 128 pages, and the records of the Gooseberry shows, 180 pages—altogether 412 pages in one volume. This shows how prevailing was the love of florists' flowers and big Gooseberries in the early part of the present century. There are but few such shows now, and it would be well if a few more of the gentlefolks lent a kindly countenance to the growth of florists' flowers by working men, and helped by a small subscription the societies by whose aid the competition is now kept alive. The records of the florists' societies in Lancashire and Yorkshire form very interesting subjects for consideration. The old botanists and florists are fast dying out, and with them the simple and genuine love of flowers will unfortunately disappear in many localities. The London show is a poor illustration of the old ones, but at Manchester you will see many a hard-handed shoemaker and soft-handed weaver with his Auriculas and Polyanthuses, the joy of his life, and if he is fortunate enough to win, it will be his great delight for years to come. These men are now scarce, and they are mostly old. The young do not seem to follow in their footsteps. This has been a trying season for florists. If it could have been foreseen that the spring would have been so open, the Auricula shows would have been fixed for an earlier date. Last year it was otherwise, and both Auriculas and Polyanthuses had to be forced, and even then there were but few ready. The best blossoms came after showing time was past. This year nearly all the Polyanthuses are over, and it will be difficult for even the large growers to stage the requisite number of plants, and they will probably be past their best even then. Those who have not grown their plants in pots will have the best chance. It is a pity that this is the case, as it should have been a brave campaign, and there was keen rivalry, but the day is past and the fight postponed for a year. Auriculas have been similarly placed in many districts, and there are large growers who will be puzzled to find any plants fit for showing. In other cases, however, the season has proved favourable, and even small collections of plants furnish a large proportion in showing form.

The mild season has had a peculiarly marked effect in many instances with the best Auriculas. Prince of Greens appears to have come badly everywhere from rank growth. Instead of having a clear black ground it has come blotched with purple, which has flashed through the green edge

to the very verge. It is grander in the truss than ever, but scarcely one pip fit for the judge. Smiling Beauty is just the same; its fine black ground has run to excess, and monopolised also the clear white edge, which is the strong feature of this lovely flower, so that scarcely any plants of the sort are fit to show in true character from this sheer exuberance of growth. On the other hand Richard Healdy has seldom been seen so good. "When it comes early it comes well," is a saying with growers of this Auricula, and having flowered at a run this season, it is thus unusually good. We have half-a-dozen pots of it all fit for staging with perfectly formed golden tubes, clear black ground, solid flat even paste, and a grey edge of exquisite finish. It will be hard to beat this year. George Lightbody was similarly good, and so was Acme, but it is an early sort and will generally be over. Acme is by far the most vigorous of the Auriculas, and always comes good. One of our plants had a truss of autumn bloom, which was taken away. The same plant also had a strong offshoot, which was taken off; both plant and offshoot have bloomed splendidly this year, showing the extraordinary vigour of the sort. Frank Simonite has also an extraordinary constitution. We took six good plants from one last year, and it now carries two splendid trusses of grand flowers, each with thirteen pips. Selfs are unusually fine this season, but the bright sunshine makes short work of them. Altogether, however, Auriculas look well, and it has been a grand year for them.

WM. BROCKBANK.

Brockhurst, Didsbury.

TULIPS ON THE GRASS.

WE have many of these in flower, or coming into flower, at present at the margins of the lawn and shrubberies as well as other things. The Tulips beat the Crocuses wholly for such purposes, but they come in later, and both are very useful for the purpose. The Tulip affords so many bright colours, they stand up well, last a long while, and are wonderfully effective. Ours are planted without any sort of order wherever they are likely to succeed permanently. The common bedding Tulips are quite equal to the best for such purposes. On one stretch, perhaps 50 yards long and of irregular outline, there are several kinds, each sort by itself, scattered promiscuously to suit the situation. One glowing mass, Gloria suit, something like the Tournesol variety, backed up behind with dark shrubs, and the shaven lawn in front of it, is conspicuous and telling just now a long way off. Beyond a mass of the Duke of York, flaked white and crimson, is just showing colour, while in another recess among the bushes and Daffodils, still fresh, is the vivid Rex Rubrum and the whitish Rosa Mundi in separate patches. A purple-crimson variety fills up the space below an old tree, where the evening sun casts its beams, and here and there among the clumps are other colours appropriately distributed in masses of 100 or 50 or so. On a bank among flowering Currants, Pyrus Malus floribunda and other shrubs planted wide enough apart to let the Grass grow between them are Crimson King Tulip, the canary-yellow Chrysolara, Duke of Parma, and white La Candeur scattered indiscriminately by themselves—one of the prettiest little spots in the garden just now. Primroses are also at their best, and Daffodils are not yet over, so that altogether these produce a pretty effect.

S. W.

Single Daffodils becoming double.—A few words only are all I have to add to what I have already said on this subject. 1. If the soil of "G. L.'s" garden really has the remarkable pro-

perty of turning single wild Daffodils into double, she may turn gardening to very good account, for the double wild English Daffodil is a choice plant, rare in catalogues, and finding a ready sale at 1s. a bulb. 2. If "C. L." will send me a double Daffodil which she is sure has been transformed in her garden from a single one, I will send her in return some choice hardy herbaceous plants, besides acknowledging the error of my opinion, but the flower sent must be the double N. Pseudo-Narcissus of English botany, and not the large double N. Telamonius (why will people spell this Telemonius?) so common in English gardens.—C. W. DOD, *Edge Hall, Malpas.*

ORCHIDS.

PRUNING ORCHIDS.

MR. BAINES confounds the subject of back breaks with cutting down. Severing the rhizomes on which the bulbs grow and cutting the back bulbs off are two different things. I admit that you may weaken the leads by dividing the plant, not because you cut the portions off from the back bulbs, but because you cut them off from a portion of the roots and the stem on which they grow, and along which passes the supplies. Mr. Baines admits that "in the case of strong, healthy plants an occasional bulb may be removed to half or a little more of its length without the ensuing season's bulb being much, if any, smaller." Would he be surprised to learn that a moderately strong plant of D. Wardianum here, from which not a portion, but the whole of the bulbs were shorn clean away at the starting of the growth, has now a strong lead from all the last year's bulbs, and in one case a double lead (a thing which Mr. Baines says "in no case" happened with him in his experiments), and that most of the growths are already nearly 18 in. or 2 ft. long, with evidently ever so much reserve growth in them yet and a long season before them? It is not what happened so many years ago, but what Mr. Baines can see and handle now, if he likes, that he has to explain. I claim from this that my experiments so far have been a great deal more successful than his. Does Mr. Baines mean to tell us that this is the result? I should expect from such severe pruning? and if not, will he explain why the plant continues to thrive so well? It must not be forgotten that the opponents of the pruning system believe not only in old bulbs of the past year in plants like D. Wardianum, but in the bulbs three and four years old (*vide* Mr. Spyer, in *The Gardener*); whereas my healthy experimental plants have no old bulbs on them at all. Furthermore, the roots of old cut-away stems are not dead, but continue to grow and absorb food from the soil. What do they do with it? It can only go into the young shoots, since the old ones have been removed. Before, they had the old stems to support; cut away, they have them not, but they still live to work. If these remarks on this subject lead to the certain conclusion that reserving so many old bulbs is useless, even if some are left, thus saving the trouble of staking, cleaning, and caring for them, an improvement will have been effected in the culture of the plants.

J. S. W.

I am sorry that your correspondent "J. S. W." does not quite see his way clear to exhibit one of his severely pruned Dendrobiums at South Kensington. I was led to suggest his doing so by the trouble he had taken in sending a bulb over to Dublin and a plant to the GARDEN office. I feel certain myself that the number of scientific and practical men which meet at Kensington would take the greatest interest in any plant that proved beyond all doubt the uselessness or otherwise of allowing Dendrobiums to retain their bulbs. No men could be more fit to judge "J. S. W.'s" productions than these, as they have many times seen the best efforts of us old-fashioned cultivators. I would suggest also that as we have exhibited the same plants year after year, "J. S. W." ought to do the same, as, like Mr. Baines, I think the back breaks from the 1-in.

stumps would be an interesting sight. There is not the slightest need for "J. S. W." to manipulate on one of my plants to prove his theory. Indeed, after the series of experiments I have made and told "J. S. W.," he could scarcely expect me to think much of one year's cultivation, and must give him credit for making experiments which few people think of doing. No doubt if people would keep their eyes open, and mark well what is passing and happening every hour around them, there would be far less need of experiments. In the matter of pruning I am prepared to follow the advice of such men as the late Mr. Thomas Rivers, that is "never cut away unless you have a reason for doing so." "J. S. W." prunes far too much for me. I cannot suppose that Nature requires it; on the contrary, I believe she hates it. Severe pruning sends more fruit to the rubbish heap than we ever see on the trees, and if applied to Orchids we shall presently find the better part of them there too.—J. C. SPYER.

EDITOR'S TABLE.

THE BLUE WOOD ANEMONE FROM WALES.—Mr. Webster sends a very interesting bunch of this from N. Wales, where, he says, it grows in a patch by itself. It is interesting to us to know that this pretty form is wild in Wales. Our gardens are certainly the richer for it.

THE DOUBLE ST. JULIAN CHERRY.—From Mr. Rawson comes this large, handsome, semi-double pink Cherry, one of the best of our flowering trees, though, perhaps, never forming so good a tree as the double white Cherry, at least not so far as we have noticed.

LABRADOR TEA (*Ledum palustre*).—This modest shrub, which we once undervalued, now comes occasionally to remind us that it is really a good and distinct hardy bush, which will grow anywhere where the Sweet Gale will grow. Its bushy-looking white blooms are very pretty.

TRILLIUM GRANDIFLORUM.—From Mr. Ware's, at Tottenham, we have this plant in three different states—green, green blotched with white, and the normal white form. Mr. Perry tells us that after a mild winter some of the flowers always come green, and that they are whitest and best after a hard one.

HAWTHORN IN BLOOM.—A little box of Hawthorn in vigorous bloom comes from "Mark" Redhill, who says: "The May trees are in full blossom; I have not been able to gather any until to-day, April 6, but it has evidently been out a week or more." They are also coming into flower, we observe, in Kensington Gardens.

THE BIRD'S-FOOT VIOLET.—One of the sweetest flowers we have seen is the bicolor form of this, sent by Col. Stuart Wortley, and alluded to by him elsewhere. The curious richness and yet delicacy of the colours is quite new, even among alpine growers. Mr. William Ingram sends a good drawing of it, which we hope to have reproduced in THE GARDEN.

AMERICAN COWSLIPS.—Always among the most welcome flowers of spring, these do not seem to thrive everywhere; indeed, a good bloom or batch of them is not often seen—why we do not know, and yet their beauty should encourage us to grow a variety of them and to grow them well. Warm loams and light soils fairly enriched seem to suit them best. They are novel and pretty as cut blooms with their graceful heads leaning over the edge of a vase.

SOLANUM CRISPUM.—We have received this from Mr. Ellacombe, who speaks of it elsewhere; but there is another and more beautiful bush which bears the same name, and which used to be very fine at Glasnevin. It is distinct from this, and of a much bluer colour with a larger flower. We believe the Glasnevin plant suffered during severe winters.

HOOP PETTICOAT NARCISSUS.—What a lovely species this is when well grown! Often on cold soils it is seen dwarf and dwindled, but some from Munstead are tall, and bold, and handsome. In the warm, sandy soil of the garden it seems to find what it wants in our climate. Those with similar soils will like to have a line or a little bed of it. It is not only an excellent addition to the later Narcissi, but one of the most charming flowers of the open-air garden.

ST. BRIDGID'S ANEMONES.—"St. Bridgid" must kindly tell us how she grows these huge, almost Peony-like Anemones on the Hill of Howth. We are in any case grateful for so many pleasant reminders of the fine form and splendid colour of the Poppy Anemone, so long a neglected flower, and seldom seen well grown even where not forgotten. It is the semi-doubles which have the grandest forms. The satiny bosses in the centre of the cups, when grown as well as these, add greatly to the beauty of the flowers.

POLYANTHUSES FROM THE NORTH.—We have received from Mr. R. S. Kesteven, Thorn Quay Gardens, Yorkshire, many rich Polyanthuses, two-year-old seedlings, of which he says he has some twenty thousand now in full bloom—a pleasant sight. They have been in flower for nearly a month, and for spring gardening either in town or country he justly asks, "What could be better—at least for the more northern parts of the country?" This is the statement of a grower who has made Polyanthuses a speciality for some twenty years or more.

LATE NARCISSUS.—Still these fair flowers blossom for us after a long season, some types being now at their best, such as the Poet's Narcissus, the Cyclamen-flowered, and the Hoop Petticoat. These are amongst the species sent by Mr. Ware during the week, and all are well grown. The Narcissus is the most perfect flower as regards lasting. In its various races it blooms sufficiently long to gratify our love for it, and to mark the long English spring, not passing quickly like Cherry bloom, or flowering when asked, like Pelargoniums.

IRIS VAN HOUTTEI.—A fine bloom of this rare hybrid Iris comes from the New Plant and Bulb Co., Colchester. It was raised, we believe, by Mr. Max Leichtlin between I. susiana and I. iberica. It is distinct from either, but more akin to I. susiana, the flowers having more of its markings. It is a very handsome and at the same time a curious flower, and the fact that it is earlier to flower than I. susiana makes it the more valuable. We have no information as to whether it is a free grower or not. A bloom of the Iberian Iris sent with it shows what a beautiful hardy flower it is.

TULIPS.—The hardness and garishness of the commonly grown Tulips are telling against them. To get any idea of the value of the Tulip races one must go to the species. Among these, owing to differences of size of bloom and stature and form of the flower, one may get a really striking group, such as Mr. Ware sends us, composed of Greigi, our yellow wood Tulip, the green tinged

form of the same, and three or four of the species at present in flower. They form a singularly varied and bold group. Tulips that please the florist least will please the artist most. Thus, it is to be hoped, we shall secure variety of form as well as colour.

SOUTH EUROPEAN ORCHIDS.—A most interesting series of these reaches us from the New Plant & Bulb Co.'s nursery, at Colchester, where they evidently are well grown and flowered. They include *Orchis papilionacea*, a pretty species with pink blossoms; *O. pasciflora*, yellow, with a dash of green on the labellum; *O. provincialis*, primrose-yellow; *Ophrys exaltata*, fusca, apifera, all with most curiously shaped blossoms, and with indescribable colour; and the singular *Aceras anthropophora*, very finely grown.

VIRGINIAN COWSLIP (*Mertensia virginica*).—This most lovely plant has, we are glad to see, become a little more common. At Munstead it is in perfect condition in warm, sandy soil and a not very sheltered place, and now Mr. Ware sends it to us from the valley of the Lea, good—not quite so large as the Surrey specimens. We believe the plant has been partly lost in putting it in situations that were too dry for it, and wish some of our readers would try it by river banks and moist places, though that these are not essential for it is very clear from its thriving in rich borders. When one stands over a good plant in flower and looks down upon it, the effect of the pretty bloom and graceful leaf is charming, and the plant is good in every way.

THE PASQUE FLOWER.—Among all the beautiful Anemones that adorn the northern and alpine world where there is one that can surpass, even if it equals, this lovely old English garden flower and native plant? The gold and purple of it make, in the well grown plants, a combination the like of which we do not know in any other plant. We are well aware that it is not rare; its slowness of growth accounts for our not often seeing good plants of it. A few years ago, like hundreds of other good things, it had been hurried out of the garden, and no doubt it will be some years before we again see good plants of one of the fairest of all rock and border flowers. Those who have a chance should increase it and grow it well.

VARIETIES OF ODONTOGLOSSUM PESCATORII.—Among a series of varieties of this charming cool house Orchid, sent us by Messrs. Shuttleworth, Carder, & Co., of Clapham, we notice what a wide range of variation there exists among them as regards size, form, and markings. Some are exceptionally large, measuring nearly 3 in. across, as large as those of the variety *grandiflorum*, while others are exquisitely marked and blotched with bright purple on the labellum, which is more ample and more conspicuous than in *O. crispum*, and the flower-spike is altogether more elegant. The pure white flowered forms, without any markings whatever, are chastely beautiful, and it is a pity that they do not occur more often. It is when a plant is imported by the thousand, as this firm does, that such a number of varieties occur, which often are more valuable than new species.

LILY OF THE VALLEY.—A lovely bunch of this, nobly grown, from Mr. Hawkins, Twickenham, who manages it so well—always fair to see. When the plant is well cultivated it is fine indeed, the flowers on long spikes and the leaves models of beauty of form. The perfect

culture of a beautiful native plant like this is surely worth as much attention as one without half its grace or beauty or fragrance, which happens to come from Africa and requires a hot-house; yet we never knew anyone to take any pride in growing it well in the open air before Mr. Hawkins. If our readers could see his specimens it would probably lead many to consider whether the cost and skill expended in our gardens were always devoted to the worthiest objects.

FRUIT GARDEN.

Effect of tar on fruit blossoms.—I should feel greatly obliged by having the opinion of some of the readers of THE GARDEN on the following: We have an Apricot house, and had a wood grating for the pathway. It received two coats of tar, in which was turpentine, but the grating was well dried and saturated with sand before being taken into the Apricot house. Hemscher was well set with fruit as large as Peas, and they are all right; but in the case of the large Early Apricot, which was in blossom, nearly all the fruits have fallen. They all received the same treatment—plenty of water and air. What we want to know is, did the blossoms fall off from the effects of the tar acted on by the sun?—E. S.

Pine growing for profit.—Although "D." (p. 267) still adheres to his assertion that leaves alone will produce sufficient bottom heat throughout the year to ensure satisfactory results, and this by forming beds in autumn, spring, and summer, yet he evades my question as to "Where and how he obtains his supply for the summer." Even now leaves exposed to the weather, either in heaps or still lying beneath the trees from which they fell, are useless for such a purpose, unless some other extraneous matter is employed along with them. Further, "D." now says that by his method he obtains satisfactory fruit from suckers in twelve months—practically, a doubtful matter. Suckers, I know, are sometimes taken from the parent plant with fruit already forming and potted, but these, not having sufficient time naturally to form adequate roots, cannot, therefore, produce Pines fit for either table or market.—THOS. COWBURN, *Sunbury Park*.

Strawberries and the past winter.—I should be glad to hear from the readers of THE GARDEN how their Strawberries look in the open. Several complaints have appeared of the weakness of forced plants. We have little complaint to make on that score, but our plants in the open have fewer and weaker crowns than usual. Fortunately we left a few that would have been dug down in the ordinary course, so that we may have a sufficient supply from a wider area. The weakness extends to the forced plants put out last season, as well as others of different ages and character. The deluging rains of the late autumn seemed to wash the strength out of the plants. Possibly, too, the slugs were abnormally busy during the frostless winter. Be the causes what it may, the result here is what is stated, and it would be interesting to know if these symptoms are general or merely local.—D. T. FISH.

Muscata Romain Grape.—As "Peregrine" (p. 248) has endeavoured to correct me in my description of this Grape as being a synonym of the Muscat of Alexandria, I would refer him to the March number of *The Florist*, where he will find the White Romain, which was sent out by Messrs. Rivers, described as "an oval, white Sweetwater Grape of second rate quality." This is "Peregrine's" Grape, but not the Muscat Romain to which I alluded in the December number of *The Florist*, which was imported by the Royal Horticultural Society from the nurseries of M. M. Baumann, of Bollwiller, and grown at Chiswick for many years. It may be found in their catalogue as Muscat Romain (*Muscataello romano*). Hogg, in "The Fruit Manual," agrees with me in

saying Muscat Romain is a synonym of the Muscat of Alexandria, and the story quoted by "Peregrine" as to the origin of the name White Romain is also given.—A. F. BARROW.

Prices of Apples in Devonshire.—In Mr. Garland's interesting account of fruit culture in Devonshire (p. 267) I observe that the prices of Apples are nearly double what we can get in London for the sorts named, and possibly many who read of 10s. per bushel being obtained for Wellingtons when they have only received 5s. will think they have been victimised in some way. Those, too, who take to Apple growing with the expectation of obtaining such prices will be disappointed. I find that 10s. per bushel is quite a fancy price for kitchen Apples; it might be realised now by any one having good samples of French Crabs, Norfolk Beings, or Sturmers, but not for Wellingtons after a plentiful crop like that of last year. The majority of our fruit growers would doubtless like to sell all their crop of selected fruits at 5s. per bushel, as at that rate they could make Apple growing profitable. I may add that last year more cider was made in this locality than had been for years, and unless Apples could be bought for less than 2s. 6d. per bushel, no one would think of cider making; only growers who have large quantities of indifferent market sorts go in for its manufacture. With other matters belonging to Mr. Garland's account I quite agree. The advice as to what to plant and the after management is excellent.—J. G. LINTON.

Bees in Peach houses.—I am glad to see "Peregrine" (p. 248) protesting against putting hives of bees into early Peach houses when in flower with the view of fertilising the blossoms. Such a practice is wholly unnecessary, and certainly ruinous as regards the bees. If perfectly developed flowers are present in sufficient quantity, and the trees are treated according to the ordinary routine of gently progressive temperatures, there is really no more difficulty with early than with late Peaches as regards setting. On the other hand, if these conditions are not secured, neither bees, brushes, nor the wet or dry system of treatment will make imperfect flowers set. I have grown two or three houses of Peaches for a good many years past, and usually have the earliest pretty full of bloom at Christmas, and, notwithstanding the uncertainty of the weather, have invariably had more thinning of fruit to do in the earliest than in the latest house, or on the open walls to which bees have full access. Our mode of procedure is simply that followed by the majority of cultivators, viz., keeping the foliage clean in all stages of its growth, avoiding overcropping, and letting the old leaves drop of their own accord. Under this treatment the young wood becomes full and abundant, and after keeping the house as cool as possible in October we shut up in November, more or less early, but are careful as regards applying fire-heat until the buds are fairly started. We avoid extremes or sudden fluctuations of temperature, especially at night. A rise with sun-strengthens the buds, but fire-heat, if applied to raise the temperature to the same height, may cause them to drop. We keep the roots moist, and when the flowers expand keep a dry, buoyant atmosphere of from 45° to 50° by night, and from 55° to 65° by day. At mid-day we touch each blossom lightly with a camel's-hair brush, commencing with the small petalled ones, like Stirling Castle, and using their superabundant pollen to fertilise the large flowered ones, such as the Noblesse, which, as a rule, is less abundantly supplied, and consequently more uncertain setters. We follow up this process daily for a week or ten days, and with excellent results. Putting bees in houses is a clumsy plan of doing what is more easily done by other means.—J. GROOM.

Vine Leaf (S. O.).—The leaf sent seems in perfect health. The little green excrescences on its under side do no harm.

Diseased Vines (Bee).—The Vine leaf sent was so folded up, smashed and torn, and so enveloped and permeated with wool, that we could make nothing of it. Kindly forward another.

NOTES OF THE WEEK.

DORONICUM AUSTRIACUM is one of the gayest and hardiest of early-flowering perennials at present, standing all the cold winds without suffering. Is not *Doronicum Clusii* of nurserymen a misnomer? The plant sold as such is quite unlike the true *Doronicum Clusii*.—J. B. H., *Aighrath*.

A RARE WALL FLOWER.—There is now at this place on a garden stone wall, belonging to Mr. Kennerley, a *Cineraria* in full bloom, and in fine condition as to colour. The seed of it is supposed to have escaped from a neighbouring greenhouse, and to have settled in a small crevice between the stones. The wall faces a public road, and the plant has had no care or protection.—M. J. B., *St. Mawes, Cornwall*.

DYED PAMPAS PLUMES.—We are indebted to Messrs. Carter for some examples of these, but though softer in the hues than usual, we do not think they are very desirable. The silvery hue which Nature gives this noble Grass is the fairest that it can wear, and the dyed blossoms indeed look poor beside it. The aim should be to secure plenty of well grown silvery plumes from districts or countries where they are fully developed in autumn.

VIOLA PEDATA BICOLOR.—I send you flowers and leaves of this *Viola*, a charming spring bedding plant, which has flowered freely with me this season. I brought it from the United States last year. The graceful way in which it throws its blossoms above the leaves, and the great freedom with which it produces them, makes it most desirable. As I gave Mr. Ingram, of Belvoir, several plants of it, he may perhaps tell you more about it.—H. STUART WORTLEY.

A GREAT ROSE SHOW is to be held on June 29 at the Mansion House, in aid of one or two of the London hospitals. It will consist of 10,000 Roses from the gardens of the principal growers arranged with Ferns and other accessories in an artistic manner. There will also be an exhibition by amateur growers, among them some of the leading citizens. The arrangements have been entrusted to Mr. J. Forsyth Johnson, horticultural director to the Alexandra Palace.

BRAMLEY'S SEEDLING APPLE.—Canon Hole sends us a specimen of this which he says is the best kitchen Apple they know of in Nottinghamshire. On trial we find it a good Apple even so late, and this is worth saying, inasmuch as during the present year Apples of any kind have been very difficult to get in Covent Garden for a good many weeks past. Some of the American kinds at present have very little flavour left. Bramley's Seedling is a very large Apple.

ELÆAGNUS LONGIFOLIA.—This belongs to the deciduous section, and just as the foliage is on the point of bursting forth every part of the plant becomes thickly studded with bunches of sweet-scented, tube-shaped flowers of a greenish white colour, sprinkled over, as is the rest of the plant, with small brown scales. Towards the end of the summer the flowers are succeeded by orange-coloured berries about the size of small Cherries. Several bushes of it are now in flower near the temperate house at Kew.—H. P.

FINELY FLOWERED DENDROBIUM.—From Perth Mr. Macdonald sends us a photograph showing a lovely specimen of *Dendrobium densiflorum*, concerning which he writes as follows: "It is one of the four Orchids with which I won the first prize at the Edinburgh show last week—a well flowered plant for its size. It measures about 2½ ft. through and bears forty spikes, with an average of forty flowers on each spike,

and very evenly flowered all round." Mr. Macdonald adds that he has a plant of *Camarotis purpurea* coming into bloom with about 100 spikes on it.

PLANTS IN FLOWER AT TOTTENHAM.—The following are among the choicer plants now in bloom at the Hale Farm Nursery, Tottenham, viz:—

<i>Silene virginica</i>	<i>Erythronium revolutum</i>
<i>Lilium roseum</i>	<i>Scilla lilio-hyanthus</i>
<i>Tulipa Kopskowskyana</i>	<i>Tulipa Hageri</i>
<i>reflexa</i>	<i>Uvularia grandiflora</i>
<i>Ixioirion Pallasi</i>	<i>Ranunculus amplexicaulis</i>
<i>montanum</i>	<i>(extra fine)</i>
<i>Orythya dasystemon</i>	<i>Tristylia</i>
<i>Fritillaria pallidiflora</i>	<i>Hyacinthus fastigiatus</i>
<i>Melegaris alba grandiflora</i>	<i>Trillium recurvatum</i>
<i>M. elegantissima</i>	<i>Dentaria tenellis</i>
	<i>Dianthus Fischeri</i>

FUCHSIA BOLIVIANA.—In one of the houses at Chiswick is a fine example of this *Fuchsia* in full flower is now a beautiful sight, a square yard or so of the plant under the roof being hung profusely with drooping corymbs of rich crimson blossoms. This is certainly one of the most satisfactory plants to grow in a greenhouse, as seldom it fails to produce a beautiful crop of bloom. This garden is particularly rich in *Fuchsias*, and from time to time we have had to notice some kind in flower. They are of easy culture, either in large pots or planted out in free soil, and their slender shoots trained underneath the roof have a pretty effect.

TULIPS AT ALPHA HOUSE, REGENT'S PARK.—The magnificent collection of Tulips grown here by Capt. Patton has been and still is most beautiful. They number quite 350 varieties, of which the following are some of the best:—

Joost van Vondel, the largest and most beautiful Tulip, pure white	Duc d'Orange, red, margined orange
Proserpine, magenta-pink	Pottschacker, tall white
Keizer Kroon, red, margined yellow	tall yellow
Orphir d'Or (new), large dwarf, pure golden yellow	tall yellow, feathered light red
Purple Crown, deep crimson-scarlet, var. fol.	Yellow Prince, yellow
<i>Maius, fluit. rd., painted with yellow</i>	Bacchus, deep scarlet
Commandant, scarlet, suffused with buff	Cottage Maid, yellow
President Lincoln, charming mauve	Semson, crimson, slightly marked orange
Cardinal's Hat, scarlet, fringed orange-yellow	Fen de Moscou, salmon, feathered crimson
De Keizer, crimson-scarlet	Princess Helena, pure white, very dwarf
Perle Blanche, pure white	Le Matelas, pale pink, fringed white (the earliest of all, and has lasted more than a month)
Californian, beautiful bright yellow	Rosa Mundi, white, suffused pale pink
Chrysolara, yellow	Rachel Ruish, white, flaked pale rose
Wouverman, purple	Singleland, rosy crimson, base of petal nearly white
Drapeau Rouge, deep rose-pink	Fen Eclante, brilliant flamed scarlet
Joost van den Vondel (new), crimson, feathered white	Globe du Rigaut, purple, feathered white
Mons Tresor, yellow	Carolus, a small Keizer Kroon, but brighter in colour
Molière, lilac, suffused white	Molière, deep rose, salmon base
Laureolite, white, flaked pale rose	Cosmians, lilac, white edging
Thomas Morus, orange-yellow, feathered scarlet	Vesuvius, scarlet
Laureolite, magenta, margined white	Grootmeester, scarlet
Hecla, bright deep scarlet	Vermilion Brilliant, scarlet
Belle Alliance, rich scarlet	

These come all among the earliest varieties. There are many other fairly good ones, such as Standard Royal, gold and silver varieties, Belle Hélène, Duc Major, Moucheron, Van Goyen, Rose Gris de Lin, Paul Maureles, Goltzius, Grand Duchesse, Duchesse Duc, Duchesse de Parma. These do not include any of the later varieties. Of the new varieties the best are—Joost van den Vondel, a very large rather dwarf Tulip, crimson feathered with white; Von Schiller, a medium-sized, but perfectly formed Tulip, red margined with yellow; Adelaide, rose; Orphir d'Or, large, pure golden yellow. Of the best unknown Tulips we should select Netscher Satinée. It is very large, very dwarf, and strong in growth; colour, purplish lilac. Altogether a grand collection.

THE FIRST GLOIRE DE DIJON glows, like the morning star of the rosarian's festival day, on the chancel wall of our church, and the mural *Maréchal Niels* are filling their big buds with beauty. Purple *Gentians* and scarlet double *Anemones* contrast charmingly with the sheets of white *Arabis* in the rock garden, but the belle of the garden just now is the lovely *Pyrus Malus floribunda*. It was a grand sight and a grand sound which I saw and heard last Sunday when I preached to the soldiers at Aldershot, and the organ was played by a colonel of dragoons in his uniform, and was accompanied by several of his band, but the colours of my *Auriculas*, *Tulips*, and *Myosotis*, and the thrushes singing amid the blossoms of the fruit are brighter to the eye and sweeter to the ear. I have had the best box of Tea Roses which I have ever seen from the gardens at Eaton.—S. R. H.

The Pink Wood Sorrel found by Mr. Archer Hind also grows between Dorking and Leith Hill. I saw it for the first time last summer and have been since asking various botanists if they know it, but none do. It is not mentioned in any flora of British plants; I think the flowers are larger than those of *Oxalis Acetosella*. There is also a very large white Wood Sorrel growing in abundance on the top of Betchworth Down. I fancy the white Wood Sorrel just named is a variety of the pink one, and quite distinct from the normal *Oxalis Acetosella*.—MARK.

Maples in the flower garden.—Few hardy plants are so well adapted for permanent use in the sub-tropical garden as the many beautiful forms of the Maple. The well known *Acer Negundo* variegatum with its white variegation, in the shape of small standards planted thinly with a groundwork of *Coleus* or *Amarantus*, forms an exquisite bed. Then there are the many beautiful forms of *Acer polymorphum*, such as *assanguineum*, *atropurpureum*, and *septemlobum*, and many others with leaves of varied colouring, and most delicately imbricated; these, if planted as centre or dot plants on a suitable groundwork, are really lovely, and, unlike most of the plants used in the sub-tropical garden, their young foliage lends a charm to the spring garden. Where we had a hardy framework to our carpet beds, such as *Sedums*, *Golden Feather*, &c., we simply removed the tender *Antennaria*s and similar plants in the autumn, and filled in the pattern with hardy spring flowers, such as *Primroses*, *Pansies*, *Forget-me-nots*, &c. The spring foliage of the little specimen Maples, which were left undisturbed, is now most beautiful. *Acer Negundo* variegatum rising out of a bed of *Dell's* *Begu* is equal to any *Coleus*, and the brilliant tints of *Acer polymorphum atropurpureum* look lively rising from a bed of *Myosotis dissitiflora* edged with *Golden Feather*, and one wishing to have really suitable plants for all the year round bedding cannot do better than obtain a collection of *Acers*; when too large for the beds they can be planted in permanent groups on the lawn or in shrubberies, where their varied foliage will be ever welcome.—JAMES GROOM.

Notes from Bromley.—I am glad to see that the *Epimedium*s are still cultivated, for nothing can exceed the beauty of their leaves just now and the quaintness of their flowers. In the list given (p. 284) of those sent by Mr. Stevens, I see he has one of my hybrids (*Rawsoni violaceum*) raised among others some twenty years ago, and handed over to Messrs. Henderson. I have *Gla diolus tristis* in bloom. I do not think this is at all common, though figured above 100 years ago. It is in the seedsman's lists occasionally, but I have never seen a flower, and I find it an obstinate one to compel into bloom. I made, I think, a mistake about *Cerasus Rhexi* last week. The double blossomed one, of which I sent you a branch, was, I believe, *C. Rhexi*. Another most beautiful shrub just now is *Berberis ilicifolia*, perfectly hardy, and a mass of bloom.—A. RAWSON.

WALLS FOR ROSES.

CONSIDERING the extreme beauty, exquisite fragrance, and the high commercial value of the Rose, it is surprising that so few walls are wholly devoted to its cultivation. In travelling up and down the country one finds mile on mile of perfect brick walls variegated rather than clothed with skeleton trees of Peaches, Nectarines, Apricots, Plums, or Pears. Here and there, too, one meets with walls admirably furnished with such trees in perfect health and full bearing, but it is doubtful if such ever at their best yield anything like the amount of either pleasure or profit that might be reaped from the same area equally well clothed with Roses, whereas in regard to those walls, on which such trees as Peaches, Apricots, and Nectarines fail to thrive or fruit freely, there can be no doubt that the substitution of Roses in their stead would prove a most gratifying change to all concerned. For it is a fact to be carefully noted by all cultivators that while Roses are rising in value day by day, that of most fruits, through changes of taste and of fashion, and the increasing imports of foreign produce, is declining. So much is this now the case that a perfect Rose is now worth as much or more than a good Peach. And as to pleasure, gratifying and beautiful as a wall covered with healthy Peach trees in fruit is, yet who can deny that a wall clothed with the fresh foliage and glorious blossoms of the finest Roses is a sight far more pleasant? Many of our finer Roses would no doubt be yet finer if grown on walls. Their shelter and their shade would prove alike useful to them. The blooms would be protected from tarnishing winds, and also at least partially from the dashing rains and storms of hail that so often play havoc among the most perfect of Roses. The plants themselves might also readily be made frost-proof on walls. In the case of the majority of that magnificent family of Hybrid Perpetuals, the mere shelter of a wall would suffice to carry them safely through the most severe winters; while as to more tender varieties, what more simple and easy than to protect them with boughs, nets, or canvas as we do now the trees that usurp the places of their betters, the Roses. By clothing both sides of our walls with Roses a great deal could be done to prolong the blooming season. On the northern and on the eastern sides most fresh and fragrant Roses might be gathered in the end of July and through the major part of August. Thus by the time the east side of the wall had finished flowering the Roses on the southern face of the wall would be yielding their second harvest of bloom, so that by the simple expedient of clothing both sides of a wall with Roses of the same or different varieties, very much might be done to make the Rose harvest continuous from May to November instead of intermittent, as at present. Not only this, but during hot, dry weather Roses full of freshness, sap, and sweetness might be cut from the shady side of walls as superior, in fact, as cheese to chalk in all those qualities that give value to the Rose, such as form, substance, size, fragrance, to those gathered from the sunny sides of walls, or dwarfs or standards in the open that have had to hold their own as best they can against withering droughts and the "midday sun's broad glare."

In advocating more walls for Roses one of my main objects is to increase the number of varieties or classes grown on walls. While readily admitting that far more Teas, Noisettes, Chinas, Hybrid Chinas, Hybrid Teas, and Banksians should be grown on walls, I should also strongly advise the liberal use of the best Hybrid Perpetuals for the same purpose. Fancy the magnificence and grandeur of a wall, say 10 ft. high, and a hundred to two hundred yards or more long, planted with such Roses as Charles Lefebvre, La France, Alfred Colomb, Annie Laxton, Camille Bernardin, Baroness Rothschild, Beauty of Waltham, Comtesse de Serenye, Duke of Edinburgh, François Michelon, Etienne Levet, Ferdinand de Lesseps, John Hopper, Hippolyte Jamin, John Bright, Madame Victor Verdier, Marie Baumann, Miss Hassard, Pierre Notting, Miss Laxton, Prince Camille de Rohan, Madame

Lacharme, Sultan of Zanzibar, Sénateur Vaisse, Star of Waltham, Victor Verdier, &c. Most of these are robust growers as well as free flowerers, and would speedily clothe a wall of any height or length, and there are others in plenty almost equally good, and probably some better omitted, for this list is merely written out at random on the impulse of the moment. Close planting 3 ft. or so apart, and something like multiple cordon training with three or five vertical shoots in the way that small Currants are mostly trained, would probably be the quickest mode of furnishing high walls, while on the lower ones oblique or horizontal training would be best. Happily the Rose readily yields to any mode of training, and it also flowers well close spurred on walls. The wall culture of the Rose, especially of the Hybrid Perpetual sections, would, however, probably develop new methods of pruning and training

hardier varieties. Thus walls may be half fruit, half Roses, or Roses of different degrees of hardness on their two sides.

This variety of site, aspect, climate within such small compass is another great advantage, and almost a new power conferred on cultivators by the wall culture of the Rose. A good beginning has been made in various directions, notably by Mr. Cant, of Colchester, who has enclosed a large portion of the northern side of his new Rose farm with a wall furnished on its southern side with Tea Roses. This wall is, as far as I remember, about 6 ft. high, and will be a sight to see when clothed from base to summit, with all the best and sweetest Teas, and other more or less tender Roses. But Rose culture on walls on a large scale may be said to be yet in its infancy, and has doubtless a great future in store for it. It may be said in a sense to be a new departure in horticultural



Croton Baron Franck Seillière, raised by M.M. Chantrier freres, at Montfontaine.

to ensure a continuous supply of vigorous young wood as well as a sufficiency of flowering spurs. Of course Roses on walls would need good root runs. But in cases of clearing off worn-out fruit trees and the substitution of Roses, the old borders with a liberal dressing of manure would be found sufficient. But some would be ready to object that the Roses would be roasted on the sunny and starved on the shady sides of walls. No doubt they would in certain localities, but in such no one would be compelled to furnish both sides with Roses, nor with Roses of the same class. For example, the southern side of the wall might be furnished with the choicer Tea Roses, and the northern with such hardy Teas as Gloire de Dijon and vigorous Hybrid Perpetuals; or in warmer climates where Peaches thrive on south walls the west aspects might be devoted to tender Roses, the eastern and northern to the

ture, which is likely greatly to improve and vastly to extend the cultivation and popularity of the Rose. D. T. F.

INDOOR GARDEN.

CROTONS AND THEIR CULTURE.

THESE handsome inmates of our stoves rank amongst the most valuable of decorative plants, not even excepting the Dracenas, amongst which there is now so much variety. Not many years back the only Crotons we had were *C. variegatus*, *angustifolius*, and *pictus*, all stereotyped kinds, so to speak, both for home decoration and exhibition, and they are still worthy of general cultivation, especially the two last. But lately large additions to the genus have been made both from the South Sea Islands and elsewhere, and also through

the skill of the hybridist. Many of these new varieties possess such marked distinctiveness of character as to attract the attention of even the casual observer. Amongst the first of these newer introductions were *C. interruptus* and *irregularis*; these were followed by *C. Johannis*, undulatus, and *Veitchi*, the forerunners of others almost too numerous to mention, but foremost amongst them may be named *C. Weismanni*, majesticus, Queen Victoria, and the comparatively new and valuable kinds *Warreni* and *Baronne James de Rothschild*. This latter promises to prove one of the very best of *Crotons* for general decorative purposes, having leaves of great substance, brilliant in colour, and of a deeper shade than that of *pictus*.

Varieties.—The following kinds I have had an opportunity of seeing, and that many of them will, when better known, be grown I have not the least doubt. First comes *C. Hawkeri*, a most distinct kind with foliage creamy-yellow underneath, edged with bright green; *C. recurvifolius*, dense in habit with recurved leaves, the midribs and veins of which are crimson and the border yellow; *C. Dayspring*, with foliage of a variable colour, but always brilliant when well grown; *C. Sinitzinianus*, with deep olive-green leaves, variegated with straw-colour like *interruptus*, but of greater length; *C. Sunset*, more brilliant even in its markings than *C. Queen Victoria*; *C. Morti*, with broad leaves, variegated with yellow; and *C. Comte de Germiny*, somewhat similar in growth, but with a dash of crimson in the markings of the midribs and veins. Two new kinds, not yet I believe in commerce, but which promise well, are *Cronstadii*, a variety with long pendulous foliage, and a likely subject to make a good table plant; and *C. Bragenus*, with foliage even longer than that of *Youngi*, and apparently a better kind, colouring more freely.

The variety which forms the subject of the annexed engraving was raised by MM. Chantier freres, and received, I believe, a first-class certificate when exhibited at South Kensington. It is of robust yet dense growth, and has deep green foliage, variegated with straw colour.

Of the various forms that are at present under cultivation the following are the best, viz.: *C. angustifolius* and *Johannis*, well known pendulous-leaved sorts, with golden-yellow and deep green foliage; *C. majesticus*, nobilis, and *Warreni*, with similar habit, but having more or less markings of deep orange-yellow and crimson; *C. Weismanni* and *aneitumensis*, with long narrow foliage and a somewhat drooping habit. Of the tri-lobate type, *Disraeli* and *Earl of Derby* are two of the best. *C. Evansianus* partakes somewhat of this character also, but is more robust. Of the forms of which the accompanying illustration is an example, *C. Veitchi*, *Hookerianus*, and *Nevillea* are well worth growing. Amongst varieties with foliage broad in proportion to its length may be named *C. Morti*, *Comte de Germiny*, *Baronne James de Rothschild*, *Williamsi*, *Andreanus*, and *Hendersoni*, all well worthy of general cultivation. *C. undulatus*, with its distinct undulated foliage and brilliant colours, is also one of the best. The aforementioned *C. Hawkeri* also has a distinct character peculiar almost to itself. *C. Queen Victoria* and *Sunset* (both with foliage after the type of the old *C. longifolius*) are the best of their class. Of the recurved varieties *C. volutus* and *recurvifolius* are both distinct kinds.

Propagation.—This is easily effected where a close pit or propagating frame is at command, with a brisk bottom-heat to induce the cuttings to strike root quickly. If young plants, for table decoration or other purposes for which they are to be used in a small state, are required, select cuttings with clean, straight growth, well-developed and finely-coloured foliage, and single stems. If the object is to grow plants into specimens quickly, the better plan is to choose cuttings of a larger size with three or four growths or even more; these when struck will make a better beginning from which to start a specimen plant; indeed, by making a good selection for this pur-

pose a season may thereby be gained. My practice is to throw the cuttings into a tank of water for an hour or two when first severed from the plant, in order that they may absorb as much moisture as possible. When inserting them make them firm in the pots; and if of large size, a support or two may be of service. I generally find them rooted and fit to withstand ordinary stove treatment in a month or six weeks.

Culture.—As soon as the young plants have filled their cutting pots with roots, they should be shifted into larger sized pots. This ought not to be overlooked, for if by chance they happen to be allowed to suffer from want of water at this early stage of their existence they will often succumb to it, or, perhaps, lose some of their leaves, and this they should not do to any extent if due attention is paid them. In fact, it is essential, in the case of small decorative plants, that they should be clothed with foliage down to the pot. Those intended for specimens should be again shifted as soon as they require it, in order to maintain a free vigorous growth. We find them do well in a compost of good soil and fibrous peat (such as one would select for *Ferns*) and turfy loam in about equal proportions; to this we add a fair amount of leaf-mould and some half-inch bones or bone meal. Charcoal is an assistance in the case of specimen plants if the loam is of an adhesive character. A liberal supply of silver sand should be added, and abundance of drainage should be given, so that the plants can always be freely supplied with water, of which they can take a good deal. They also live in a moist atmosphere and a maximum stove temperature. The syringe should at all times be plied vigorously among the foliage. We use it at this season of the year at least three times daily; later on, when the weather is hot, another turn will be given them at nightfall. Under this treatment ordinary tying material soon becomes rotten; our practice, therefore, is to use tarred string, which lasts longer. In training specimen plants we have found a pyramid form to be about the best, and in my opinion preferable to that of a bush. In the pyramidal form the height ought to be about one-fourth in excess of the width. This shape I think displays their beautifully-marked foliage to the best advantage, but a too formal outline should not be adhered to; on the contrary, the points of all the shoots should project in order to give as much diversity as possible, and admit light to the young leaves. Some kinds do not make much lateral growth, and where this is the case pinching must be frequently resorted to. Shading is unnecessary even during bright sunshine, unless the weather is excessively hot, and it should not then be used for any length of time. The best plan is to arrange the *Crotons* so that they do not receive the shade that is necessary in the case of most other ornamental foliaged stove plants. Their rich colours will then be intensified.

Insects.—*Crotons* afford a refuge for insect pests, against which an incessant war must be waged if the cultivator wishes to produce plants that will do himself credit. In the case of mealy bug, brown and white scale, we use nothing but the Chelsea Blight Composition. Other insecticides are doubtless also effectual, but we adhere to the one that we have found from experience to be so. For black and white thrips, fagimigation will answer if repeated two or three times in rapid succession. Red-spider is also a great enemy to *Crotons*, and I found another insect closely allied to it, but even smaller, to give almost endless annoyance for some time, causing the young leaves to fall before they were half grown. As a remedy for this and red-spider, I was advised to keep a bag of soot in the tank from which the water was drawn for syringing. This had the desired effect. Having found this remedy so beneficial, we make it a practice to always keep a small quantity in the tank from which the water is used both for watering and syringing. Soot is not only valuable in a manual point of view, but a great deterrent to many insects, and even the fronds of the tenderest *Fern* are not injured by it.

I would strongly advise any one to try the soot-bag remedy and watch the result.

JAMES HUDSON.

Gunnarsbury House, Acton, W.

THE NICOTIANAS, OR TOBACCOS.

BEAUTIFUL as some of these are, I can scarcely recommend them to those whose taste is only for brilliant colours. They are, nevertheless, lovely plants, and have been charmingly conspicuous in certain collections which I have seen, notably one at Worcester, where in a greenhouse, half wild, I remember having found *N. undulata* flowering beautifully—here and there, perhaps, in a pot, but as often rooted in soil, on or below the stages, and pushing its flowering stems up through the foliage of the specimens above. They are practically of annual duration, and are best so treated as a rule, though sometimes strong plants of them may usefully be kept a second year. The greatest fault they have is a usually lank habit, but this may often be turned to advantage in the arrangement of house plants. Their names are in some confusion, but I shall take them as follows:—

N. affinis.—This species has lately received much attention. It was introduced by Mr. W. H. Cullingford, and is one of the two best, the other being *N. undulata*. The name does not appear in the older books, but was authorised last year by a figure in a contemporary. We have at present no information as to its native country. It grows about 2 ft. high, and by pinching may be induced to be most floriferous. The flowers, which are snow-white, emit a delightful fragrance; they measure 3 in. across, and have a tube of about the same length. They open at night and last long in perfection. The lower leaves are numerous and about 6 in. long, somewhat ovate in form. Mr. Cullingford says that it blooms well out-of-doors, but that taken care of as a pot plant through the winter it develops into a splendid specimen for summer blooming.

N. acutifolia is a handsome kind, though, perhaps, a little coarse, and it is scentless. It was distributed by Max Leichtlin.

N. undulata is an old favourite which we have known for years. It is slender and graceful, and bears lovely white flowers, which may be had all the year round. Their fragrance, too, at night is delightful. In summer it may be planted out-of-doors with good effect. It is also called *N. fragrans* and *N. odorata*. It is a native of Peru.

N. longiflora is a name often given to *N. undulata*, but the right plant, according to De Candolle, is by no means so handsome. It is probably not in cultivation. Sweet's figure is said to show that *N. affinis* is allied to this variety.

N. suaveolens is rather a charming plant. It was sent last year to the Cambridge Botanic Garden from Sydney as native Tobacco, and was recommended as useful for cutting from, a purpose for which it certainly appears to be valuable. It is sometimes also called *N. undulata*. The leaves are lanceolate, tapering to both ends, the flowers large, in loose panicles, white and fragrant. It is a native of New Holland.

N. noctiflora, introduced a few years ago, does not appear to have been valued for garden purposes. It has lanceolate, viscid leaves and flowers with long pinkish corolla tubes. It is a native of the Argentine Republic.

N. tubiflora.—A plant under this name received a high character some time ago. It was suggested to be either *N. affinis* or *N. noctiflora*. It may be the former, but it is not likely to be the latter.

N. Tabacum is also a fine plant for pot culture, as anyone can testify who has seen some of the flowering specimens in the economic house at Kew. Not only is it handsome in foliage, but the red flowers when in good masses are extremely

ornamental. A good variety is that sometimes met with under the name of *grandiflora*. *N. glauca*, though sometimes seen in botanic gardens, cannot be recommended for general culture. It is arborescent, and is furnished with long branches, having cordate-ovate leaves on long petioles and very glaucous. The flowers are yellowish green with a small cup-shaped limb, and are not very freely produced. It is a native of Buenos Ayres.

Many other *Tobaccos* have been cultivated, but the preceding have all come under notice



Nicotiana suaveolens.

within the last few years. As to culture, little need be said. All the kinds may be successfully raised and grown without heat, but where warmth is available it is best to raise them about the middle of March or a little later, and grow them on to meet the best summer weather for growth and flowering. They like rich soil, and should not be allowed to become pot-bound. Water may be given as in the case of other soft-wooded plants.

R. I. LYNCH.

Calliphurria subdentata.—I should be much obliged for information as to the cultivation of this plant. I bought a pot containing eight bulbs of it at a sale; they are about the size of pigeons' eggs, and have leaves 15 in. long. The gardener who had had the cultivation of them said they had never flowered during the six years they had been under his care.—B.

Camellias in pots.—IN THE GARDEN (p. 228) a correspondent writing on Camellias in pots says, the soil that suits them best is good fibrous loam and peat in equal parts. Now, no doubt this mixture answered well in this particular case. But why is the chemical character of the loam not stated? This has far more to do with successful Camellia culture than the mechanical. And your correspondent need not consult a chemist in reference to this matter; the vegetation from whence he obtains his supply is sufficient. I have had to do with various loams, some of which to casual observers would be considered excellent for Camellia culture, but, mixed with peat, or even unmixed, their roots would not touch it. I have seen them turned out of pots after having been in them for two years, and scarcely a root had entered the new material in which they were potted. The plants were sickly and the leaves spotted and dying—poisoned, in fact. If writers would state the chemical composition of the soils they recommend instead of the mechanical, fewer debilitated and dying plants would be the result. I believe that failures in nearly every instance could be traced to bad material in the way of soils.—J. EASTER, *Rothadair, Ireland.*

Production of roots.—I send you a Cauliflower plant potted three weeks ago. One half of the pot is filled with pure sand, such as we use here for all common propagating purposes and composts, and the other half with a compost of

loam, leaf-mould, and Standen's manure. The plant was dibbled straight down between the two composts. Kindly note which side contains most roots—the sand, or the compost of rich materials?—J. S. W. [The sand contained no roots comparatively, while the rich compost was full of them; but we think the experiment would have been more conclusive had plants of equal strength to begin with been placed in different pots and had soil, however poor, been used instead of sand.]

GARDEN DESTROYERS.

The following extracts are from a paper on injurious insects read at a late meeting of the Richmond Athenæum by Miss Ormerod:—

Oak galls.—Referring first to a few of the more noticeable forms of abnormal growths known as galls, which insects give rise to on our Oaks, Miss Ormerod said: The Oak suffers from at least forty kinds of galls formed by small four-winged flies of the genus *Cynips* or nearly allied genera, which may be described as very like small wasps, but furnished with an ovipositor instead of a sting. With this they puncture the unexpanded leaf-bud (sometimes months before the leaves unfold); or the growing leaves, or the inflorescence, or the bark, or creeping under the surface of the ground, even the root fibres are not secure from attack. One or more eggs are inserted at the attacked spot, and from the irritation caused by the presence of the egg, or by some process accompanying egg-laying, the diseased growths arise which we know as Oak galls, in which the maggots or larvæ hatch, and feed, and in due time go through their transformations to the perfect insect. Of these the well-known Oak Apples are almost the

with many cells, each containing, according to the stage of development, a whitish, legless maggot or a chrysalis, or the perfect *Cynips*.

The Marble Oak gall, which is to be found so plentifully on our Oak hedges in autumn, is of considerable interest, from the great attention directed to it—not to say the sudden alarm caused by it some eight and twenty years ago. Previously to that time it had been little observed, but then either from its occurring in unusual numbers, or from some cause unknown, an idea arose that it was a new-comer, which was rapidly spreading over the country, and would occasion serious loss to us by diminishing the amount of the Acorn crop. It was proposed to utilise the cause of the disturbance by collecting the galls for the manufacture of ink, instead of Aleppo galls, and it was even suggested that we should export them, but trial and analysis have not encouraged this ink manufacture, and observation has shown that these galls chiefly occur on the low-growing Oaks or on Oak hedges, and consequently the crop of the large Acorn-bearing trees is not likely to be diminished.

Daddy-longlegs.—Passing on to 1880, Miss Ormerod remarked that the chief insect attack in that year was from larvæ of the Tipulæ or crane-flies, also, and more commonly, known as daddy-longlegs grubs. These two-winged flies, like gigantic gnats, were most prevalent amongst moist vegetation and on wet land, such as was caused in many parts of the country by the continuous rains of 1879. The legless larvæ, which by their peculiar shape were well fitted to travel about through the earth from one plant to another (injuring far more than they entirely destroyed), were a widespread trouble—yet not without benefit, for it was shown by careful experiments how much may be done to support a crop temporarily attacked in this way by such applications and such preparation of the ground as were calculated to cause and encourage a healthy and hearty rate of growth, such as would counterbalance the injury caused by the feeding of the grub.

Turnip fly or flea beetle.—In some cases this destructive insect was present in 1881 to such an extent that scarcely one field of Swedes or Turnips escaped throughout whole counties. As to the results of this attack, Miss Ormerod said: The amount of acreage under Swedes and Turnips in 1881, of the counties from which I had reports of attack (as given in the Government agricultural returns of Great Britain) amounted to 1,343,872 acres. In my estimate I have only calculated half this area as attacked, that is 671,936 acres, and although in many cases re-sowing took place twice, in some cases three times, and some four times, I have only estimated it as occurring once, and I have also calculated the amount of seed used per acre and its price at the lowest which could be considered a fair average. This estimate shows that for seed alone for one re-sowing of half the acreage of the twenty-two English and eleven Scotch counties considered the cost would be £75,592 15s.; the cost of one re-sowing, including the seed and some necessary recultivation of the ground, sowing, &c., at the rate of 15s. per acre, would amount to £503,952; at 20s. per acre, which would often be much nearer, and even this would sometimes be too low, it would, of course, be the same in pounds as the number of acres—£671,936. That is, a definite and clearly calculable sum of more than half a million wasted by this pest.

Powers of destruction.—I should like to add a few words more on this subject as shown in the returns sent me of loss in 1881. The Bean aphid destroyed on a field at Maldon, Essex, at the rate of not less than 4 bushels, or a money loss of about £1 per acre. The Beet fly at a locality in Cumberland caused a loss per acre of from two to ten tons. The daddy-longlegs grub caused loss at Baldock, Herts, of quite £100 on forty acres of wheat. The *Stiones*, or Pea weevils, whose work we know so well in our gardens by the semi-circular scoops eaten out of the young leaves, injured, near Stevenage, at the rate of at



Nicotiana acutifolia.

first to appear. Early in May these may be seen sprouting like irregularly-formed rosy-tinted balls amongst the expanding leaves. When fully grown the gall will be found to be of a spongy tissue

least £40 on twenty acres of Peas. The maggot of a two-winged fly, a species of *Oscinis*, of which the life history as yet is not fully worked out, destroyed at the rate of fifteen bushels per acre on about fifty acres of wheat, near Tewkesbury, by feeding within the young plant. These are only just a few of the notes of the ravages constantly going on year by year, and which call for attention. We have our natural history and our entomological societies throughout the country, and we publish "transactions" and "proceedings" of more or less use, but we record more than we are aware of. The injurious insects have associations also, and we publish their results for them; may I so far play on the words as to call them their "transactions" their "proceedings," and where do we find them? We find them recorded on the payment pages of the account books of the landed proprietors, the farmers, the foresters, and the gardeners throughout the country, and they form a total beyond all general supposition in the amount of the annual expenditure of the nation.

TREES AND SHRUBS.

ORNAMENTAL SHRUBS.

THE following are a few of the many good shrubs that are not half so much planted as they should be: *Clethrass* have Lily of the Valley-like flowers, and bloom through August and September. *C. alnifolia* is the best of them; it has foliage like that of an Alder, and blooms in spikes like those of a Veronica; it grows fast, flowers freely, and is quite hardy. It likes peaty soil. *Berberis Jamiesoni* is a very ornamental evergreen Barberry, with yellow wood and strong spines; the leaves are long and shining and somewhat hairy. It grows very fast, and gets somewhat injured in severe winters, but soon recovers in spring. We have this Barberry under the name of *Jamiesoni*, but I cannot find it in any work on trees and shrubs. It is, however, known under that name in some large shrub nurseries. It deserves to be planted in company with the ever beautiful *B. Darwini*, or the lovely *B. dulcis*. *Escallonia* are useful, especially the old *E. macrantha*, where it stands the winter uninjured. The new *E. philippiana* is exceedingly pretty, with its long shoots covered their whole length in spring with pretty white flowers. It is very hardy. *Exochorda grandiflora*, or *Spiraea grandiflora*, according to some, is a charming shrub with Willow-like shoots and white flowers, produced in April and May in slender racemes. It grows fast, and is even ornamental when not in flower. Although a beautifully coloured plate of it appeared in THE GARDEN, one seldom meets with it.

Ilex Fortunei (crenata of some, although I am inclined to think the two are distinct) is a very fine evergreen shrub, which few would take to be an *Ilex*. It grows compact and erect, the leaves somewhat resembling those of Box, but prickly; the berries, which are about the size of those of the Privet, are black. *Ilex japonica* is quite distinct, being much dwarfer and less fastigate. The former would make a grand plant for hedges to ornamental grounds, inasmuch as it grows 18 in. or so in a season, and the berries mixed with the red and yellow-berried kinds might prove useful for house decoration.

Gaultheria Shallon, which grows from 3 ft. to 4 ft. high, has white flowers and purple fruit. *G. procumbens*, which is a small, low-growing plant, being not more than 6 in. high, has reddish leaves, white flowers, and bright red berries about the size of small Peas. This would prove serviceable for wreaths and similar ornaments. It is a most suitable plant for edging *Rhododendron* or *Azalea* beds with, and I ought to add that its fruit is said to be edible. *Ledum palustre* is an evergreen which mixes well with American plants, but grows best in a damp situation. Its flowers are white, not unlike those of a white *Pimelea* (sometimes they are purplish white), and are freely produced. The leaves are rusty beneath. *L. latifolia* is similar to *L. palustre*. *Osman-*

thus ilicifolius, with its Holly-like leaves and bushy habit, is one of the most distinct of shrubs, and *O. myrtifolius* is a dwarf-growing, but distinct form of it. This small kind is most useful for filling beds in winter or for placing in front of shrubberies or in window boxes. The silver and gold variegated varieties of *O. ilicifolius* are desirable shrubs, especially the former, which grows as fast as the green form. Both are very hardy; they have not been injured here during the two last winters, and they withstand being planted in a dry situation better than many things. *Vaccinium* mix well with American plants. Of these there are several sorts, but *V. ovatum* is the best for the purpose just named. It has an upright habit and *Phillyrea*-like leaves, which assume quite a reddish hue in autumn and winter, rendering it a valuable hardy, ornamental-leaved shrub. *Perneytia*, too, deserve more attention than they receive. They are small evergreen shrubs, furnished with narrow coriaceous leaves and white pendulous flowers. *Spiraea angustifolia* and *muconota* likewise merit attention. This last is the best; they ought to be planted in a somewhat dry place.

The well-known *Andromeda floribunda* is found everywhere and needs no comment, but I never remember to have seen it so well bloomed and so little injured by frost as this season. Several others of them also deserve to be grown, and amongst them I may mention the neglected, but beautiful, *A. pulverulenta*, which is quite distinct from *A. floribunda*. It has long straight shoots when young and brownish wood; the blooms, which appear in June and July, are much larger than those of *A. floribunda*. *A. angustifolia* is likewise distinct. *Skimmia* are very ornamental when covered with red berries; they are low growing little shrubs which do best in the shade, a fact which makes them valuable. The finest I ever saw were overhung with large trees. *S. japonica* is the best of them and most grown; the shoots would be useful for the decoration of churches, &c., the berries being so bright. *S. oblata* is also a fine kind. *Prunus triloba* deserves to be more frequently met with than it is. It has pretty pinkish-white flowers, and is quite distinct from its compeer, the white *P. sinensis*. J. CROOK.

Farnboro'.

Ribes pumilum aureum.—This is a pigmy shrub of prostrate, wiry growth, thickly furnished with small leaves of a golden yellow colour, as bright as that of the golden-leaved *Valerian* or the *Spiraea opulifolia aurea*. Some highly tinted branches of it come from Messrs. Osborn, who are distributing it from their Sunbury Nursery. Growing only from 9 in. to 12 in. high, it is a rock garden plant, and if placed in an exposed position and so that it may be seen in contrast with green-leaved plants, it is very effective.—W. G.

Aucuba berries.—"Reader" (p. 241) asks how often *Aucuba* will bear berries. I can assure him that they will give a good crop every year if properly attended to. A friend of mine has a plant which he fertilises every year, and it always bears him a fine crop of berries; this year they are in unusual numbers. *Aucuba* well covered with fruit are very handsome shrubs, and well repay the trouble of fertilising, which is really very slight, and the plants are much more certain to bear berries when the pollen is applied by hand than if left to insects and the winds. The pollen from the male flowers may easily be collected by brushing it on to a sheet of paper with a camel's-hair brush, and can be kept if the female flowers are not open until they are. If they are then touched with a brush covered with the pollen, so that a few grains are left on each flower, which is very quickly done, a good crop of berries will be the result.—G. S. S.

Apples in shrubberies.—Those wishing, as many must wish, to plant beautiful flowering Apple trees in their shrubberies and on their lawns should not forget the Golden Spire. It flowers and bears every year, but it is for the foliage that it is particularly valuable. It is quite distinct in growth, and indeed peculiar, having a willowy appearance.—L. A. K.

GARDEN FLORA.

PLATE CCCXXXIX.—MESOSPINIDIUM VULCANIUM.

Of the now very numerous class of Orchids that can be grown in what is termed a cool house few, if any, have a greater claim to popularity than the one which we now illustrate. It is, in fact, everybody's plant, for it may be bought comparatively cheap. It does not require much skill to grow it well, and it never fails to produce in early spring such graceful bloom as that here represented. It is not what is generally termed a new Orchid, for ten years or so have elapsed since the first record of it as a cultivated plant appeared, and it had previously been long known to botanists. It is a native of the volcanic mountains of the Tungaragua district of the Upper Amazons, where it was first discovered by Spruce about twenty years ago. There is one other cultivated species of *Mesospindium* named *sanguineum*, which is likewise a charming, but less showy Orchid, and, according to the latest revision of the genera of *Orchidaceae* there is a third cultivated, *Mesospindium*, viz., the orange-coloured *Ada aurantiaca*. Cultivators generally will, however, object, we think, to substituting the long for the short name, and, moreover, the *Ada* is in some respects very dissimilar to the two generally known species of *Mesospindium*. Another plant greatly resembling *M. vulcanicum* is *Odontoglossum roseum*, but the two differ in structure, though not much in colour. The *Mesospindium* is, however, the better plant, and it is generally better grown than the *Odontoglossum*. The plant from which our plate was prepared—an exceptionally well grown and highly coloured one—we found in Mr. Lee's rich collection at Downside, Leatherhead, where the air and other conditions are so favourable to the culture of cool Orchids, especially in bringing their colours to the highest perfection.

CULTURE.—With regard to this we cannot do better than quote the words of Mr. Woolford, Mr. Lee's gardener. "This cool Orchid," he says, "is one of the easiest to cultivate; it grows well either in pot, pan, or basket and, when grown strongly, its drooping spikes have a striking effect associated with those of *Odontoglossum crispum*, although the *Mesospindium* flowers often at a time when there are not many of the latter in bloom. We grow it best in shallow pans in a mixture of fibrous peat and Sphagnum, with charcoal and crocks for drainage, and suspended about 18 in. below the top ventilators, through which in mild weather the wind often blows strong enough to make the pans swing; when, however, the temperature outside is under 40°, we give more air at the bottom of the house and less at the top, so as to drive the warm air up to the plant—treatment which we find suits *Odontoglossum Rossi majus*. In hot weather the pans are taken down and dipped before they get quite dry."

CHEMICAL INTENSITY OF DAYLIGHT.

As "London Stone" (p. 236) raises the important question of the actinism of vegetative power, or chemical intensity of the sun's rays, and states as his own opinion that the actinic power of the sun is, except in high latitudes, very nearly equal all over the world, I have thought it possible that a few notes, taken chiefly from my work on "Horticultural Buildings," would be interesting to him as well as to some of your other readers. As every one knows, the solar rays may be said to possess three distinct powers—lighting, heating, and producing chemical action. So distinct are these powers, that we can separate the light from the heat, and both, in a certain degree, from the chemical rays. The annexed table shows the results of experiments by Drs. Roscoe and Thorp,



carried out at Lisbon, where the sun attains a higher altitude than in England :—

Mean altitude of sun.	Chemical intensity.		
° /	Sun.	Sky.	Total.
9° 51	0	33	38
19 14	23	63	86
31 14	52	100	152
42 15	100	115	215
53 9	136	126	262
61 8	195	132	327
64 14	221	138	359

We thus see that the higher the altitude of the sun the more intense is the chemical power of the sky, as well as of the direct sun rays; also that at altitudes below 10° above the horizon direct sunlight is robbed of all its chemical power. From numerous experiments carried out by the same gentlemen, it was ascertained that the average of the chemical intensity of daylight at Para was 303·2, Lisbon 110, and Kew 46·06, or more than six and a half times greater at Para than at Kew. How all these facts are utilised for the purpose of showing the most theoretically accurate pitches of roofs of glasshouses with different aspects, for various purposes, in different localities, at different times of the year, can be seen in detail by "London Stone" at pp. 18-28 of the book just mentioned. F. A. FAWKES.

MARKET GARDENS.

MARKET GARDENING AROUND NEW YORK.*

PROBABLY nowhere in this or any other country is the business of market gardening better done than in the vicinity of New York City. The reason for this is probably to be found in the fact that New York, being the great depot for all the nationalities of Europe, gets from them the various methods there practised; in addition to this, and what may have even more to do with it, our higher priced labour forces us to adopt plans entirely unthought of there. Certain it is that, so far as the practical work in use for cultivation is concerned, our methods, in nearly all operations, are quicker done here than there, and are equally well done. In the immediate suburbs of New York, where the lands are rapidly being taken for building sites, many of the market gardeners pay as high as £20 rent per acre annually, and that, too, in most cases without a lease. All such lands, of course, are cultivated to their fullest capacity, and even at present prices (which are hardly yet up to those of anti-war times) bring an average gross income of about £200 per acre. A great advantage is found in having the lands for growing vegetables as near to the city as possible. The saving in hauling of manure is one important item; but another, and one far more important, is that if the grower is near enough to the city to make two or three trips a day in such a fluctuating market as New York, it is greatly to his advantage. I have frequently seen that nearly double value could be obtained for products within twenty-four hours. I remember, on one occasion when engaged in business in Jersey City, where we were within half-an-hour's time of the great wholesale Washington Market of New York, one Saturday, that each of our four wagons made three trips, taking in twelve loads of Cabbages, which averaged £10 per load; while on the Monday following the same loads only brought us £6 per load. Had we been ten or twelve miles distant from the market, as the greater number of those engaged in the business are, the high rates ruling that day could not have been taken advantage of. I am inclined to believe that, whatever kind of horticultural product is grown, whether fruit, flowers, or vegetables, he who is nearest market, other things being equal, has a decided advantage; so much so that in most cases a man had better pay £10

or even £20 per acre rent, if within one or two miles from the market of a large city, than to get land ten or twelve miles away for nothing.

Raising vegetable seeds under glass.

—I have little to relate new in methods of culture in the open ground in market gardening. Nearly the same processes are now practised as when I first wrote my work on this subject in 1866; but since that time we have made many important improvements in culture under glass, particularly in the methods in use in starting plants of Cabbage, Cauliflower, and Lettuce; the old plan of sowing the seeds for these plants in the open air in September, and pricking them off in October, and keeping them in cold frames is gradually giving way to sowing in greenhouses or hotbeds in February, and pricking out in March, which gives a far healthier and nearly as strong a plant by the first week in April as those that have been wintered. The past season we raised nearly half a million of plants in this manner, which we sold at £1 per 1000, a price as profitable to us as the plants were satisfactory to the buyers. We sowed the seeds the first week in February on one of our greenhouse benches so thick, that the young plants stood twenty to the square inch. These we began to thin, to prick out in hotbeds, just as the first rough leaf appeared, placing 1000 plants in a 3 X 6 sash. The handling of that quantity was a big job, but I doubt if one plant in a thousand failed, owing, I think, to a plan we used in preparing the bed on the greenhouse bench for the seeds, a plan that I think well worthy of imitation in preparing a bed for seeds that have to be transplanted, of any kind, whether outside or under glass. We used only 2 in. in depth of soil for our seed-bed, which was made up as follows: For the first layer, about 1 in., we used a good friable loam, run through a $\frac{1}{2}$ -in. sieve. This was patted down with a spade, and made perfectly level and moderately firm. On this was spread about $\frac{1}{4}$ in. of Sphagnum (Moss from the swamps), which had been dried and run through a sieve nearly as fine as mosquito wire, so that it was in the condition of fine sawdust. On the top of the Moss the ordinary soil was again strewn to a depth of about $\frac{3}{4}$ in. This being levelled, the seed was sown very thickly, and then pressed into the soil with a smooth board. On this the fine Moss was again sifted, thick enough to cover the seed only. The bed was then freely watered with a fine rose, and in a week every seed that had life in it was a plant.

Value of sifted Moss in seed beds.—

When the seed of most plants germinate where they are thickly sown, the stem strikes down into the soil, the roots forming a tap-root with few fibres, unless arrested by something. Here comes the value of our $\frac{1}{4}$ in. of sifted Moss, placed $\frac{3}{4}$ in. from the top. As soon as the rootlets touch the Moss they ramify in all directions, so that when a bunch of seedlings is lifted up and pulled apart, there is a mass of rootlets, to which the Moss, less or more, adheres attached to each. To the practical gardener, the advantage of this is obvious; the tiny seedling has a mass of roots at once. The advantage of the Moss covering of the seed is not so apparent in the matter of a free germinating seed, such as Cabbage, as in many others, but in many families of plants it is of the greatest value. For example, last November I took two lots of 10,000 seeds of Centaurea candida (one of the Dusty Miller plants so much used for ribbon lines); both were sown on the same day, and exactly in the same manner, in boxes of 2 in. deep of soil; but the one lot was covered with the sifted Moss, and the other with fine soil. From the Moss-covered lot we got over 9000 fine plants, while from that covered by soil only about 3000. The same results were shown in a large lot of seeds of the now famous climbing plant, Ampelopsis Veitchii, and in the finer varieties of Clematis. The reason is plain: the thin layer of sifted Moss never bakes or hardens, holding just the right degree of moisture, and has less tendency to generate damp or fungus than any substance I

know of. In this connection I may state that the use of wintered Lettuce plants for forcing in greenhouses or hot-houses is here, to a great extent, being abandoned, and that the plants used for that purpose are such as have been sown five or six weeks only previous to planting, in the manner described for Cabbage plants, sowings being made for succession as required. These young plants are found to be far less liable than others to the Lettuce disease, known as "rust" or "blight," which has created so much havoc in forcing this vegetable in all quarters of the country. I have been written to by hundreds in relation to a remedy for this disease, and know of none, except the use of young plants, raised as above recommended, using, wherever practicable, fresh soil each season. One of my neighbours, who uses nearly 3000 sashes in the forcing of Lettuce, has adopted this plan for the past two years, and has had no Lettuce disease.

Varieties of vegetables.—As I have before said, although there is but little in general culture to tell, almost every year brings out some improvement in varieties. Within the past dozen years many important advances have been made in earliness and in quality of vegetables. Among Beets we have the Egyptian, which matures at least five days before any other variety, except the old Bassano, which was too light in colour to suit; in Cabbages, the Early Summer; and in Cauliflower, the Snowball; in Celery, the Golden Dwarf; and the next season is likely to develop a great improvement in the new White Walnut Celery, a stout, solid kind, having a rich, Walnut-like flavour and graceful, feather-like foliage. In Lettuce, the Black-seeded Simpson and the White Summer Cabbage now lead all outdoor varieties; in Musk Melons, the Hackensack, of which many thousands of acres are grown for the New York market, is almost exclusively planted. In Peas a great improvement is developed in the dwarf variety known as American Wonder, though for general early crop the improved Dan O'Rourke is best. Potatoes vary so much in different localities, that it is difficult to say which of the new sorts are most valued; we find, however, that in our general trade more of Beauty of Hebron is planted than any other of the new sorts. In Radishes, the new Round Dark Red is now the main favourite, while next in order comes the White-tipped Turnip. In Spinach, the Savoy and the new Thick-leaved are the best for a general crop, though we find that the Savoy should not be sown in spring, as it runs too quickly to seed. Though every year brings out new claimants for favour in Tomatoes, it is my conviction that we have not advanced one day in earliness (unless in such varieties as Keyes's Prolific and Little Gem, which are of poor quality) in twenty-five years, although we have now many varieties somewhat improved in quality. The varieties now most popular with New York market gardeners are Acme and Paragon, though from the unusual publicity given to Trophy the general cultivation of that is greater than any other, but as it is usually found now it is far inferior to many others, besides being one of the latest varieties.

Strawberries and vegetables alternately.—Quite a number of our market gardeners are now beginning to grow Strawberries in conjunction with their vegetable crops by following the pot layering system, by which a crop is obtained in less than a year from the time of planting. We have ourselves grown, for the past six or seven years, upwards of an acre of Strawberries in this manner, alternating them with the vegetables grown in our "trial grounds." As the process may be new to some, I will briefly detail it. As soon as the fruit is gathered, the beds are well forked up, and the runners begin to grow rapidly, so that in the vicinity of New York we can always obtain strong pot layers by the 10th to 15th of July. These, if then planted out, never fail (if properly cultivated and the runners kept pinched off) to give a full crop by June next year; not only a full crop, but finer fruit than is usually obtained by the other methods. Our manner of performing the operation of layering the runners of Straw-

* Read by Mr. Peter Henderson, at a recent annual meeting of the American Nurseriesmen and Seedsmen's Association at Dayton.

berries in pots is as follows: The pots, which should not exceed 2½ in. in diameter, are filled with the soil in which the Strawberries are growing, and "plunged" or sunk to the level of the surface; the layer is then laid on the pot, and held in its place by a small stone; the stone not only serves to keep the plant in its place, so that its roots will strike into the soil of the pot, but it also serves to mark where the pot is, for, being sunk to the level of the surface, rains wash the soil around the pots, so that they could not well be seen unless marked by the stone. Any good workman, after a little experience, will layer 2000 per day. In ten or twelve days after the Strawberry layers have been put down the pots will be filled with roots; they are then cut from the parent plant, taken up, placed close together, and shaded and watered for a few days before being planted out. If so treated, not one plant in a thousand need fail. We grow only an acre or so each year for the purpose of testing varieties, but I am so convinced of the value of the plan, that if I grew largely for market I would prefer it to any other. It will be understood that by this method the plants only occupy the ground about ten or eleven months from the time the plants are set out in July or August until the fruit is gathered in June. As I have before said, we alternate the Strawberry crop with vegetables. Our samples of Cabbage, Cauliflower, Radishes, Lettuce, &c., in our trial grounds occupy the same space, so that when the ground is cleared of these in June or July the Strawberry layers are planted in their place, while a crop of Celery takes the place of the Strawberry crop that had fruited, so that the ground is never allowed to lay idle.

The question of fertilisers for the use of the market garden is now becoming a very serious one for the market gardeners in such cities as New York, where the manure from the stables does not increase in the ratio of the lands cultivated, as perhaps half of the products grown are shipped to adjacent towns and cities. Still there are few market gardeners who do not use stable manure, which costs, when fit to go on the land, from 8s. to 12s. per ton. This is put on sparingly, at the rate of from fifty to seventy-five tons per acre, which is often supplemented by half a ton of Peruvian guano or bone dust, sown on the land and harrowed in after the stable manure has been ploughed in. A great variety of fertilisers are used besides Peruvian guano and bone dust, such as fish guano, dry blood fertiliser, blood and bone fertiliser, together with the various brands of phosphates; but the majority of cultivators prefer pure bone meal or Peruvian guano to all others. I saw a list the other day wherein was enumerated no fewer than sixteen separate kinds of special fertilisers for thirty different crops, with the chemical elements of each split down to even one-half of 1 per cent. Now, I know nothing whatever about agricultural chemistry, and it may be presumption in me to criticise such a list, yet when I am told that one kind of fertiliser is needed for Cabbages, and another kind for Turnips; one for Sugar-cane and another for Corn; one for Wheat and another for Grass, I am forced to the conclusion that science, so-called, is taking the place of common sense, and is in direct opposition to the experience of the practical farmer or gardener in his operations in the soil. In our market gardening and greenhouse operations we cultivate largely nearly every known family of plants, and in my long experience I have yet to see a fruit, flower, or vegetable crop that was not benefited, and nearly in the same degree, by a judicious application of pure bone dust, and I would here suggest to the advocates of special fertilisers that in their experiments they try equal weights of pure bone dust to the half of the crops of Wheat, Potatoes, Cabbage, or Strawberries, being experimented on by the "specials," and note the results. I do not mean to be understood that these so-called special fertilisers do not answer the purpose of the crop to which they are applied; but what I protest against is the hair-splitting distinctions claimed for them, confusing and troublesome to

the cultivator, if of no practical value. American commercial florists have for the past quarter of a century utterly discarded the various formulas for the preparation of different soils, for the various families of plants cultivated, so dogmatically insisted upon even yet by most European gardeners, and instead of a dozen different moulds heaps, usually one only is used, composed of three parts rotted sods and one of rotted stable manure; yet who will say that our results have not been as good in consequence? I believe the same fate will soon overtake the "specials" in fertilisers. They may hold their own, perhaps, for a time among a few amateur cultivators of 7 ft. by 9 ft. garden patches—men usually glib with the pen, and who get into an ecstasy over their success with a dozen Tomato or a score of Strawberry plants—but few of the hard-fisted gardeners or farmers who live by the soil are likely to become converts. My business as a seedsman brings me in contact with many hundreds of farmers and gardeners each season, but I have known of few who think it necessary to use special fertilisers for special crops. It would certainly be a misfortune for the Orange grower of Florida, the Cotton planter of Louisiana, or the Wheat grower of Ohio if he was induced to freight a special manure for his particular crop 1000 miles if he had as good a material in bone dust at his door. If our law makers at Washington had given that attention to agriculture that its importance deserves, we would long ago have had suitable grounds there to test such questions, on a scale large enough and broad enough to determine whether or not the manure suitable for a Potato was equally suitable for a Cabbage.

FLOWER GARDEN.

SPRING NOTES.

My last notes (March 11) concluded with a fear lest we might suffer from the luxuriance of an early spring, and the month which has since passed has been a season of cutting frosts, cold, dry, easterly and westerly winds, lack of moisture, and much sunshine; so that in one way or other it has always been against the gardener, and kept him both anxious and busy. Nevertheless, it has been a bright and enjoyable season, and we must take the bitters as well as the sweets. On the whole the gardens have prospered, and I cannot find anything much the worse for the cold weather, and very few plants have succumbed; the blossoms have not been nearly so fine, and their duration has been shortened. Wallflowers have been, and still are, very beautiful, and after losing them for two seasons their grand form this year is doubly welcome. I never saw them so fine; singles and doubles, browns and yellows, reds and purples, are alike good, giving depth of tone and richness to the brightness of the spring flowers. Many of the early Daffodils still linger, and the later ones are in full bloom, especially the incomparabilis group. Mr. Burbidge kindly sent me a few bulbs of his great Irish Daffodil last autumn (*N. maximus*—the Golden Daffodil), and I willingly admit its pre-eminence. It is now blooming alongside the Emperor, and it bears the palm. It is taller, richer in colour, and a more striking plant, but at the same time they are so different, that each may be placed first of its class. *N. maximus* is in colour like his earlier brother, *N. obvallaris*, the Tenby Daffodil, which is also a prime favourite here. In the bicolor section I must again give the first place to *N. Horsfieldi*; it is not so tall as the Emperor, but it has a sturdier habit, carries its head more erectly, and has a larger flower and handsomer foliage. For forcing purposes it is the very best Daffodil, and when its merits are well known it should come into extensive cultivation. Mr. Leeds's *N. bicolor maximus*, which was figured in the *Magazine of Botany* for 1851,

is also a grand flower, very like the ordinary *N. bicolor*, but differing by having larger perianth petals and a longer tube. It is not so fine as *Horsfieldi*, but it comes a fortnight later, and is now in its prime. The *N. incomparabilis* group have been most interesting, and here the Leeds section hold their own against all the Narcissi I have seen. *N. Frank Miles* is a good bold flower, but it has not the rich orange margin to the tube which characterises so beautifully *N. Leedsi* and the other Longford varieties of the peerless Daffodil. The white forms of *N. incomparabilis* Leeds are also extremely beautiful and still unsurpassed. *N. angustifolius*, a slender variety of *N. poeticus*, comes into flower at the same time as *N. bicolor*, and so also the *Jonquills*, *N. Macleai*, and many of the *Tazetta* group. *N. poeticus* comes last of all, and its double form lingers almost until summer. There is no flower so enjoyable as the Daffodil, and every gardener should endeavour to have a good collection. They are little trouble and their increase is rapid, so that in a few years you can enjoy the pleasure of cutting a bouquet of them for your visitors. The Crown Imperials are just beginning to fade. The cold winds are fatal to their stately beauty, and they are soon withered. Their little brethren, the *Fritillaries*, are more hardy, and seem to care little for frost or drought. They are quaintly pretty plants, and the white variety is especially pretty. The *Pyrenean* form has its outer coat of sober brown, and the inner surface chequered brown with blotches of bright green instead of having its chequers outside, as in *F. Meleagris*.

Leucojum aestivum is now in full beauty, and another lovely white flower, *Ornithogalum nutans*, is worth a place on every rockery border. *Erodium hymenodes*, which flowered last year almost up to Christmas, is again in flower, like a lovely little spotted *Pelargonium*. I think this is one of the most persistent bloomers we have amongst hardy plants. *Arnebia echioides*, which blooms thrice a year, is now bearing its first crop of pretty yellow flowers. *Lychnis alpina*, grown here from seed, is now flowering vigorously, and *Campanula alpina*, quaintest of alpine flowers, is carrying seven large Bluebells upon a tiny stalk not 4 in. in height. The *Gentians* (*acaulis*, *verna*, and *bavariae*) are in bloom, all of the same lovely blue.

Primula denticulata *ambalis*, a variety raised by Herr Max Leichtlin, is very beautiful. It bears spherical trusses of purple-pink flowers, reminding one rather of our *P. farinosa* in shape and beauty. I consider this a great advance upon *P. denticulata*. *P. cortusoides* does very well on the rockeries, and is exceedingly pretty there. Even at the top of dry limestone it thrives in crevices, and seems at home either in moist or dry places. *Primroses* and *Polyanthuses* are now in their glory, and form our chiefest splendours at this moment, and as we grow *Auriculas* also both in frames and out, we are just now enjoying the supreme beauty of this lovely class of florists' flowers—the prime favourites of all true florists.

Of the new Iberises I think well of *I. Gibraltarica* hybrid. It is a very floriferous plant, and has all the beauty of its parent, with a sturdier habit. *I. Pruiti* is also an excellent Candy-tuft for the rockery, having smaller trusses of bloom, but a hardy, vigorous habit. *Smelowskia alpina* is another excellent rock plant, having *Cress-like* foliage and small ivory-white flowers. The *Anemones* have done well and are still beautiful. *A. fulgens* is a grand scarlet, whilst *A. blanda* and *apennina* are of a lovely blue. Of *A. nemorosa* we have the single and double forms of white, and a lovely pink variety sent by Miss Owen, and lastly, the beautiful blue *A. Robinsoniana*. The *Anemone-like* *Adonis ver-*

nalis has also been very pretty with its large, bright yellow lustrous blooms. The Pulmonarias are still in their full beauty, and seem likely to last a long time yet. Trolliuses are commencing to flower, and many Saxifragas are showing their tiny flowerets of white, pink, and yellow on the rockeries. The big Saxifragas of the cordifolia type are very beautiful, and I am not surprised to hear of the grand effect they have produced under Mr. Ingram's care at Belvoir. Here we have them placed along our rockery steps at each side, and the effect is exceedingly good. The large clusters of rosy pink flowers crowning the big green leaves are seen to perfection in such a position. It never occurred to me that they would do equally well on the borders as Mr. Ingram has used them.

Didbury, April 15.

BROCKHURST.

IPOMEEA PURPUREA.

(MORNING GLORY.)

BEAUTIFUL as the old *Convolvulus major* is—a name by which this plant is often known—it is seldom met with in gardens, combining, though it does, brilliancy of flowers with elegant growth. What more charming plant is there for adorning a garden trellis or festooning shrubs in company with such climbers as the Canary Creeper, Indian Cress, or Sweet Peas? One of the most satisfactory ways in which to grow the Morning Glory is so that it may ramble over a fully exposed trellis, such, for instance, as should form a background to mixed borders of choice hardy flowers. In such a position, mingled with other twiners, it is seen to perfection, and when once started in good soil it needs no assistance, the slender stems reaching 10 ft. or more in height. It is often treated as a hardy annual, but, in general, it is of stronger growth, and produces finer flowers when raised from seed sown in heated frames. The time to sow it in frames is about the beginning of April (but now even is not too late), and the seedlings should be planted out in good light soil when about 6 in. high. The varieties of *I. purpurea* are very numerous, and



Ipomoea purpurea.

occur in a great variety of colours, some being pure white, others deep violet, rose, blue, crimson, and some even prettily striped. It is also known as *Pharbitis hispida*, a name under which it occurs in some seed catalogues.

W. G.

Ranunculus amplexicaulis.—This beautiful Buttercup has lately been in charming condition in the borders of the College Gardens at Dublin. Its pure white colour and good form, combined with distinct and graceful foliage, make it one of the loveliest plants of spring. It may be said to be an alpine or rock plant, but it has the good property of thriving in good soil anywhere on the level ground.—P. F.

BULBOCODIUM TRIGYNUM.

THIS little bulbous plant is a pretty addition to early spring flowers, blooming, as it does, as early as February, even before its better known congener *B. vernum*. It is of small stature, be-



Bulbocodium trigynum.

ing but a few inches high; it forms a tuft of three broad leaves, from the centre of which spring two or more flowers of a pretty pale lilac tint. Being a new plant, not much is known as regards its culture, but it is apparently quite hardy. It is a native of the Caucasus and surrounding countries. Our woodcut was prepared in February last from plants growing in the Hale Farm Nursery, Tottenham.

W. G.

PLANTS IN FLOWER AT SOUTHWOOD.

LAST month was the finest for alpine plants I have known for many years. What we too often unfortunately get in March is a dry, cold north-east wind with frost at night and sunshine during the day—the worst weather we can possibly have. Under such circumstances alpine, which have a rooting and trailing stem, such as the varieties of *Saxifraga oppositifolia* and many others, have no chance at all. Anemones have bloomed finely this year; *A. fulgens* and its varieties, *A. f. stellata*, *bracteata*, *purpurea*, and *alba* have been unusually bright. They have bloomed indifferently until this year, and I am not sure whether it is the very dry weather experienced during the early summer months of last year, or a complete upheaval and replenishment with peat which has caused this marked improvement. *A. pennina* and the Poppy kinds have been very fine. I cannot fully make up my mind that *A. ranunculoides* is a species. We have several varieties and intermediate forms between it and *A. nemorosa*; one is called *A. r. pallida*, another *A. r. major*, the flowers of which are as large as those of the Wood Anemone. The true *A. ranunculoides* has much smaller flowers than the latter. *A. thalicroides* is another relative of the Wood Anemone group, very pretty, with bracteate flowers. Then comes the best of all—*A. Robinsoniana*, with noble flowers of sky-blue. *A. vernalis* is just past, and its relative, *A. Pulsatilla*, is coming on. All the Anemones mentioned, with the early *A. blanda*, ought to be in every garden. Androsaces with us this year are a failure, that is to say, the earlier kinds, such as *A. carnea*, *A. Laggeri*, and *A. brigantica*. They are flowering, but weakly; and I am not prepared to say whether that is the result of the hot weather of 1881, or the mild winter which we have had, or whether, as according to Mr. Hammond's experience, they are "dying out." It is said that

many of them have a biennial tendency, and need renewing every two or three years from seed, a statement which I believe has a good deal of truth in it. Of the *Arabis* family, there are the beautiful white sheets of the indispensable *A. albidia*; also *A. arenosa*, a pretty, and neat lilac-flowered kind.

which sows itself freely without becoming obtrusive; *A. blepharophylla*, *A. rosea*, and *A. Androsacea*, forming neat woolly cushions, from which spring delicate scapes of white flowers—all being alike desirable. *Arenaria balearica*, also called *A. multicaulis*, looks charming, showing its pretty white stars to the sun from under a rock, a place which it has itself taken up, for we never would have thought of planting it in any but a shady situation.

On a new hardy fernery with a northern aspect we intend planting the little Sandwort freely, and hope to see it almost cover the stones. *Aubrietia* are all nearly alike and very beautiful. *A. Columnae* and *A. croatica* are late flowering kinds, the latter being dwarf and distinct. The following are also in flower, viz., *A. Campbelli*, *Hendersoni*, *grandiflora*, *hesperidifolia*, *spatulata*, *Pinnardi*, *Bougainvillea*, *olympica*, *Eyrei*, and *tauricola*. *Bryanthus erectus* is a beautiful American undershrub well worth notice. It belongs to the Heath family, as does also the *Epigaea repens*, and enjoys similar treatment, growing in a moist, but well drained peaty soil. Its habit is similar to that of our British *Empetrum nigrum*, to which it is nearly allied, and it carries now a number of beautiful umbel-like bunches of good sized, pale rose, half-drooping flowers. In the cultivation of these American undershrubs, the late Mr. J. C. Niven used to consider that, taken into account the difference between the climate of this country and that of the United States, permanent shade here was unnecessary. If they could only be shielded from spring frosts when blooming, and a scorching sun when making their young leaves (say, during our hottest months), and then only a very slight screen from the mid-day sun would be necessary, that, he thought, would be all that would be needed to secure success, provided they were kept moist during summer. The indispensable and beautiful white flowered *Cordamine trifoliata* does not like a calcareous soil. I need only mention the popular *Glory of the Snow* as having been very fine in masses of thirty, forty, or fifty bulbs. The Hoop Petticoat *Narcissus* has been beautiful, and seems to get stronger year after year, but yet we can scarcely hope to see it thoroughly establish itself. A miniature and rather scarce *Broom* is *Cytisus Arduini*; it creeps along the ground, forming beautiful sheets of clear yellow. Of the *Daphnes* there are *D. Fioniana*, a good evergreen bush; *D. Blagayana*, just past, is very sweet, but straggling, and not ornamental.

mental compared with *D. Cneorum* and its neat, but scarce, little relative *D. rupestris*.

Drabas have been flowering for more than a month. *D. cuspidata* and its allies *D. lasiocarpa* and *aloides* are now producing seeds. These yellow-flowered *Drabas* of the *aloides* type enjoy



Beta vulgaris brasiliensis.

a hard calcareous loam in the full sun, where they sow themselves freely. Other yellow-flowered kinds whose affinity is more doubtful are *D. Sauteri*, *D. brunifolia*, which forms pretty cushions; *D. baotica*, a strong form resembling *D. cuspidata*, but carrying a neat, drooping scape, instead of an erect corymbose raceme; and *D. glacialis*, a miniature kind. There is, moreover, *D. aurea*, nearly as coarse in habit as *Alyssum saxatile*. Some of the white-flowered ones are equally, if not more, beautiful; of these, *D. ciliata* is the best. There are also *D. contorta* and a little group having very close relationship, of which *D. rupestris* may be taken as the type. These are *D. confusa*, *D. incana*, and *D. stellata*; also an odd, but not ornamental one, *D. altaica*, and a beautiful and distinct biennial one, *D. tridentata*.

The *Erysimum*s are all yellow and much alike, neat, desirable, and easy to grow in calcareous loam. Dog's-tooth Violets have not flowered well with us this year; they enjoy more moisture and shade than we have hitherto given them. In peaty soil *E. albidum*, a species from North America, is unusually fine. It is later than the *Dens-canis* group. There is also the plain-leaved twin, golden-flowered *E. grandiflorum* and *E. americanum*. *Ficaria ranunculoides grandiflora* is a good bog plant. Amongst the *Fritillaries* the best open now is *F. Meleagris* in many varieties. *F. pallidiflora* is in habit precisely what we could call *F. pyrenaica* major floreopallida. It has sulphur-coloured flowers mottled with green, and is far from ornamental. *F. Moggridgei* is just past, while *F. Burnati* is in flower. Besides the well-known *Gentians*, *G. verna* and *G. acaulis*, I have only to record *G. excisa*.

Houstonia coerulea and its white and stronger-growing variety are apparently trying to exhaust themselves in the process of flowering. They are at home in company with *Bryanthus erectus* and *Epigaea repens*, which latter has now commenced to make its new growth. *Hutchinsia brevicaulis* has, with many others, proved to us the necessity of furnishing a soil entirely free from lime. Its sessile heads of pure white flowers are very pretty. *Iberis gibraltarica hybrida* is coarse in habit; if the proper place for it, a dry sunny bank, be not given it, it can scarcely be looked upon as worth growing. In such a position it hangs nicely and is induced to flower freely. Though annual in itself, through the successional flowering of different plants, a patch of *Ionopodium acaule* has been beautiful since last November. Of *Linarias* I need only name *L. alpina* and *L. hepaticifolia*, as flowering about the walks and anywhere we can afford them space. *Lychis alpina* has flowered abundantly. This sows itself freely with us, but is liable to be attacked by wireworm. The beautiful *Myosotis rupicola* is in bloom in thousands. So freely does it grow with us that we use it for bedding purposes. Many *Narcissi* have been in flower, but they scarcely come within the arena of rock gardening. *Petrocallis pyrenaica* shows its appreciation of a

dry position on limestone. Mr. Whitehead lately sent home from the Alps a nice piece of the purple Milkwort (*P. Chamæbuxus atro-purpurea*) in flower. Of *Primulas*, *P. marginata* has been fine on limestone. *Romanzoffia sitchensis* is a pretty little plant for a damp situation. It has white Saxifrage-like flowers, to which family it belongs. Of *Buttercups* we have *Ranunculus amplexicaulis*, *R. montanus*, and *R. anemonoides*, very fine in damp soil, with small stones, on limestone. We have only lately found the way to grow the American Bloodroot (*Sanguinaria canadensis*). It is at home in a shady spot, growing in retentive loam, with a few bits of chalk amongst the soil, which is covered with Liverwort.

Amongst Saxifrages there are many flowering; the best are *S. aretoides* var. *primulina*, on lime; *S. confusa*, on lime; *S. irrigua*, moist situation on lime; and *S. Wallacii*. Tulips are represented by *T. Clusiana*, with deep rose markings on the outer surface of the perianth segments, and an almost black blotch at the base of each on the inner surface. *T. stellata* also has a black blotch on the inner surface. *Veronicas* of various kinds are now open, *V. satorejefolia* being the earliest and best.

Southwood, Bickley.

T. D. HATFIELD.

ORNAMENTAL BEETS.

APART from the culinary value of the garden Beet it is really a fine foliaged plant in the fullest sense of the term, few other outdoor plants surpassing it as regards rich, deep crimson colour. For several years past some of the brightest leaved sorts have been used with good effect in gardens in combination with other plants, the colour of the Beet being uniform throughout the season, a valuable character in ornamental gardening. One of the best sorts for ornamental purposes is a variety lately distributed by Messrs. Haage & Schmidt, of Erfurt, under the

required expressly for decorative purposes, they should be raised in slightly heated frames early in spring, so that by May they will be good-sized plants, capable of producing an immediate effect. What is known as the Chilean Beet is a variety of *B. Cicla*, a showy plant. When well grown its leaves are often more than 3 ft. long, and produced in erect tufts; the most attractive parts of the foliage are the brightly coloured stalks, midribs, and veins, which in one variety are deep magenta-crimson, in another deep yellow, colours that contrast strikingly with the shining deep green of the blade of the leaf. Such plants are very effective, and the fact of their being almost, if not quite, hardy, renders them all the more valuable. Though the Beets in the London parks have, during the present winter, retained their freshness unharmed either by wet or cold, yet it is best to treat them as annuals, raising them in heat in early spring and planting them out when of good size in May. The seedlings vary considerably with respect to colour, but the best may be easily distinguished even in a young state before they are planted out permanently. On account of the colour of their foliage being very pronounced, Beets should be used sparingly in ornamental gardening, and with discretion, a remark which also applies to all plants of a similar character. W. G.

Petunias and their uses.—Of late years *Petunias* have not been so largely used for summer bedding as formerly—owing, doubtless, to the great increase that has taken place as regards bedding varieties of *Pelargoniums*, and the more general use of fine-foliaged plants. They are, however, in every way so well suited for planting in large vases and in baskets of mixed plants, also against low trellises, under windows and walls, that their culture is well worth attention. In certain positions some of the varieties produce a



Beta hortensis metallica.

name of the Victoria Beet, or *Beta hortensis metallica*. In this the growth is uncommonly robust, the foliage ample, and of a rich, deep metallic crimson hue, which no weather affects. It will, therefore, be found to be an important plant for sub-tropical gardening, or for use in any way where plants possessing ornamental foliage form the chief attraction. It is as easily grown as the ordinary garden Beet, though when plants are

charming effect when planted in masses, but it is necessary that the spot chosen for them be open and sunny, and the soil deep and rich. In low, damp situations they mildew and canker as soon as the first cold nights set in. The best bedding varieties are *Spitfire*, dark purplish crimson; *Dr. Hogg*, purple, with white throat; *Miss Amy*, crimson and white; *Countess of Ellesmere*, rosy crimson, with a lighter throat; and *Delicata*, white, striped with purple. Seedlings, too, now

come so good that they are frequently planted in mixed borders for cutting. If sown in heat in February or March, good plants may be had for putting out at the end of May, and earlier than that is not safe to plant them. The named kinds must be propagated from cuttings put in in August; at that season they strike quickly when placed on a bed of leaves or other fermenting material where the temperature ranges from 70° to 75°, and where there is a top heat of 65°. As soon as rooted they should be taken out of the bottom heat, and placed in cold frames till frosty nights set in; they should then be removed to an intermediate house and be placed on shelves near the glass, there to remain in store pots till spring, when they should be potted off singly, and grown on as sturdily as possible till planting-out time. The roots are so brittle that, however well they may be rooted, the soil does not adhere to them—a circumstance that renders it necessary to pot them singly; if put in pans or boxes, and transplanted from them to the beds, they suffer greatly, and are a long time in getting re-established.—W. W.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J., SURREY.

DOUBLE-FLOWERED Gorse is now at its best, and has an imposing effect in a room if good-sized boughs are thickly heaped in a large gilt or polished brass bowl and stood rather high against a dark background. Pale sulphur-coloured Spanish Broom stands in a tall glass by itself. Yellow Polyanthus, pale and dark, with deep yellow Wall-flowers and Hoop-petticoat Narcissus, make a brilliant bouquet in a transparent blue Venetian glass. The pure blue of Virginian Lungwort combines happily with alpine Auriculas of a clouded dusky white. Flowering sprays of *Eoxochorda grandiflora* spring from a mass of the delicate newly-developed foliage of *Epimedium alpinum*, a few sprays of *Eoxochorda* being chosen in bud. A large bowl is filled with *Myosotis dissitiflora* with the fresh green foliage of wild Whortleberry. Wallflowers still provide dinner-table decorations unsurpassed for richness of colour. In pots bedded in Moss in polished Italian coppers are Indian Azaleas, white and pink, and a large *Imantophyllum* miniatum; this has its own mossier of growing *Selaginella*.

FLOWER GARDEN.

W. WILDSMITH, HECKFELD.

Flowering trees and shrubs.—As was the case with all kinds of fruit trees except Apples, flowering trees and shrubs are this year more than usually floriferous, and by way of memoranda for future planting, the present is the time to decide the varying merits of each, both as to the position for which they are best suited and colours of blossom. The wild Cherries, the Almonds, and Laburnums are all excellent for planting as standards in large shrubberies for distant effect; and the double and single blossomed Gorse, Broom, both white and yellow flowered, Lilacs, Syringas, and Weigelas are suitable for forming groups, either alone or in combination, but Syringas and Weigelas look best when well backed up with evergreen shrubs. Horse and Spanish Chestnuts, False Acacias, and Hawthorns seem most at home, perhaps when planted singly on the turf, but this is purely a matter of taste and the character of the ground formation to be planted, which obviously can only be satisfactorily decided on the spot. Be that as it may, every place having any pretensions to gardening should have a collection of flowering trees and shrubs; and now when they are in full beauty is the time to note and decide to what extent it may be desirable to use them.

Rock garden and hardy fernery.—Pick off seed vessels and decayed flowers from the earlier flowering plants, and keep the whole free

from weeds. Couch Grass and *Spergula* are at this season very troublesome, and unless destroyed betimes quickly overrun the weaker growing plants. The dwarf Phloxes, Aubrietias, Myosotis, Omphalodes, and two or three varieties of Saxifrages are now finely in flower, but, handsomely as they are, they should not be permitted to encroach on others, which like weeds they quickly do if permitted to grow unrestrictedly. Keep the walks free from weeds, but not too dressy; Moss-growth or heathy are the most appropriate. Formal walks or edgings do not harmonise well with the surrounding irregularities of a rock garden, but where these exist keep the edgings clipped and the walks hard and clean. Ferns from which the old fronds have not yet been removed should have that attention at once, and additional soil should be given to all that need it; transplanting, too, may yet be done. When there is not sufficient to well furnish the ground, plant at long distances, and fill the intervening spaces with the common Wood Mosses, Sedums, and Stonecrops. The common wild Hyacinths, Wood Anemones, Violets, Primroses, Snowdrops, and Daffodils are all in their season most effective as undergrowths for Ferns.

General work.—Lawns should be mown and Grass verges clipped. Apart from the untidy aspect of uncut edgings, it is desirable to cut these regularly to prevent seeding Grasses making weedy walks, and the same remark applies to Grass margins of shrubby clumps. Continue to plant out all the hardy section of bedding plants, also thin out hardy annuals sown in the open borders, and plant out those sown in warmth. Stake Shelter Peas and make another sowing. Place in sheltered positions, easy of protection, out-of-doors all the hardiest kinds of bedding plants; such as *Pelargoniums*, *Ageratums*, *Lobelias*, *Verbenas*, &c., which will allow of the potting on of recently struck plants of the same kinds, and also the tender sorts, such as *Coleus*, *Amarantus*, *Freesias*, and seedling subtropicals, which to do them justice require plenty of space and warmth.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Shrubby Clerodendrons.—Old plants of these, such as *C. fallax*, *C. Kämpferi*, and *C. fragrans*, started early will now be pushing up their flower-stems, and should have their heads kept well up to the glass near the roof ventilators, as, although they like a brisk heat and a moist atmosphere, they do best where subjected to less shade and more under the influence of a considerable amount of air for a time daily than most things. For ordinary decoration *C. fallax* and *C. Kämpferi* are the most useful the first year of blooming after being raised from either seeds or cuttings; these, with their large, single, erect panicles of the brightest red flowers issuing from broad, massive foliage, have a telling effect interspersed amongst *Caladiums* and other fine-foliated subjects. Keep the undersides of the leaves regularly syringed to preserve them from insects, especially thrips and red spider.

Thunbergia Harrisii.—Plants of this that have been blooming throughout the winter should now be cut back; they are free rooters, soon exhausting the soil. If planted out, as much of the top soil as can be got away without too great a disturbance of the roots should be removed and replaced with new material; if in pots, they ought to be partially shaken out and repotted, giving them more room. This *Thunbergia* does not require the warmest stove treatment, as if kept too close and hot it is apt to run over much into growth at the expense of flower, and it is not suitable for training as a specimen; it both does and looks much better when trained to the roof. Its pale lilac or mauve flowers, in form and size not unlike those of the major variety of *Acimenes* patens, produced freely during winter and spring, do much to embellish any house in which they may be grown, but they are not the best for cutting, as they soon flag when severed from the plant.

Aphelandras.—Large plants of the useful autumn blooming *A. cristata* kept cool through the winter and started some time back should, if not already done, be now partially shaken out, replacing the old effete soil with good loam, of which has been added a moderate quantity of rotten manure and sand. Large plants require large pots, or the bloom will be comparatively meagre. A moderate heat is sufficient with plenty of air and a liberal supply of water when growth has fairly started. *A. elegans* is a handsome free-flowering kind that needs comparatively little room, and should be found wherever stove plants are cultivated. Small plants of it should now be pushed on by giving them larger pots and encouraging free growth. Like most of the genus, it is an erect grower naturally, and can only be induced to branch out sparsely by stopping, yet the points should be once at least nipped out. *A. Rozei* is a small habited species, and will bloom freely in little pots. Than this few more effective plants have been introduced of late years, its brilliant orange-scarlet spikes being often produced by examples in 4-in. or 5-in. pots. It is most useful for standing on the side stages of an ordinary stove.

Shading.—Position and other local circumstances go to determine how soon in the year it becomes necessary to shade stove plants. A hip-roofed or lean-to house facing the south naturally requires the use of shade sooner than a span-roofed structure standing with its ends north and south, a position in which the bars and rafters do much to break the sun's rays when most powerful; no more shade should on any account ever be used than is absolutely necessary to prevent the foliage of the plants from being injured. Soft foliage, the result of indifferent cultivation, is much more susceptible of injury from direct exposure to the sun than that of the same plants would be if well managed. All sorts of makeshifts are often used for shading, from the colouring laid on the glass down to flour-paste and whitewash; all these are objectionable, and the further the obscuring material is from white the more is it undesirable. Where a high standard of cultivation is aimed at, nothing but blinds on rollers will suffice, the material used being no thicker than will break the sun's rays without excluding them.

FRUIT.

W. COLEMAN, EASTON CASTLE.

Vines.—Take advantage of every ray of sunshine in the management of late houses by closing about 3.30 with moisture, when the fire-heat may be kept shut off until the temperature falls to within 5° of the night heat, which need not exceed 60° for the present. If inside borders are well drained they may be copiously watered without fear of injury; indeed a large percentage of inside borders never get half enough water; the roots go out in search of that which is denied to them at home, and many people imagine it is the position of the border and not their own bad treatment which drives them downwards and outwards, often into deep subsoils too crude and cold for anything less hardy than a common Oak. Another mistake which many people make is the giving their late Vines too much root room, particularly in low damp situations where everything but the moisture-laden atmosphere is unfavourable to good Grape growing. In such situations I have always found that internal borders 6 ft. wide, and external borders 9 ft. wide, will give a maximum of good Grapes at a minimum of cost, simply because they are full of active roots which can be fed without watering half the garden, and being warm the Grapes invariably set, swell, and colour well. Another advantage is the alternate system of taking out and renovating the borders with new soil without having to sacrifice a crop, when too much vigour is unfavourable to the proper ripening of the wood, and as the latter means unripe Grapes, growers of late kinds who complained so much last winter will do well to look to their borders, and if they are wide, deep, rich, and cold,

steel forks must be brought into use before they will again be successful in the Grape room.

Early houses in which the Grapes are ripening may have more air on fine days, but draughts must be avoided, and if the inside borders are sufficiently moist the usual damping down may be continued, as spring Grapes require more moisture than can be given to late ones. Let laterals grow without a check if they seem inclined to start, and keep a sharp eye on the old foliage, as spider is almost sure to be present, and injury to the primary leaves at this early season is very often the cause of early Vines breaking prematurely in the autumn, and covering their unfortunate owners with glory by ripening up new Grapes in January. With many the usual remedy for spider is flowers of sulphur, but, independently of the fact that Frontignans and other thin-skinned kinds are often rusted and ruined by its use, timely sponging of the upper and undersides of the leaves with soapy water is undoubtedly the most effectual, as it is the most economical mode of dealing with this troublesome pest. Another troublesome marauder is the spider, as it thoroughly enjoys the dry warmth and security which it finds in a bunch of Grapes, but it must be destroyed, otherwise the delicate bloom will be disturbed before it is properly set.

Peaches and Nectarines.—Assuming that the final thinning of the fruit in the early house has been brought to a close, and the shoots have been properly regulated, give every Peach the full benefit of sun and light by elevating it above the foliage and pinch the points out of the strongest growths where their vigour is likely to detract from the size of the fruit when ripe. Feed well with warm liquid and syringe freely with soft water, twice a day until the fruit begins to ripen, the first time before the ventilators are opened, and again after they are closed, when with sun heat the temperature may run up to 75°, and gradually descend to 60° for the night when mild, and 56° when cold, and sharp firing is needed to admit of a little front air. Fly the syringe well in succession houses in which the fruit is stoning, mulch the borders with good rotten manure to keep in surface moisture, and feed with warm diluted liquid at every watering, or guano water where the growths are weak and the foliage is deficient in size and substance. Open the ventilators early on fine mornings, and increase the air as the temperature rises to 70°, reduce in a similar way, and close about 4 p.m. with a good syringing. Continue to disbud the shoots and thin the fruit in late succession houses, leaving a small percentage to be taken off at the final thinning. Heel in the young growths as they advance, lay in no more wood than is actually required for the production of the next year's crop of fruit. Fumigate on the first appearance of green fly, and encourage a short-jointed, vigorous growth by the free admission of air and timely closing to save fire heat.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

Vegetables.—Brussels Sprouts should now be ready for picking out. Get a load or two of old Mushroom manure, spread it on the surface of any out-of-the-way corner (1 in. deep is ample), and finish off with another inch deep of fine soil. Burnt refuse is the best of all mixtures for young plants, say four barrow-loads of soil to one of refuse; on this prick out the young plants 4 in. apart, and when planting out finally force the spade under the bottom of the bed, and each plant will come up with a ball. Set your line across the site to be planted, and take out one side spit, and at every 3 ft. apart lay in your plant, pressing the soil firmly round it. Nothing more is needed except keeping the ground free from weeds. As regards spring Broccoli, before my next calendar appears the time will be slightly past for sowing this really paying crop. I sow on May 1, and find that date, or about that, preferable to any other time. I always sow in drills 1 ft. apart, and plant out the plants from the seed beds to their permanent quarters, the site being that occupied by early

Potatoes. When the Potatoes are all lifted we give the land a rough rake over with an implement called the agitator, set the line across the site, and make the holes with a crowbar; one man dips in the plants while another fills the holes with water. The work of planting is then complete. For a selection of Cauliflowers and Broccoli to span the year, see former calendars as to the early Broccoli, such as Veitch's two varieties, good old Walcheren, and Early Dwarf Mammoth, leaving me on this occasion to mention the winter and spring varieties, which I have found to do best at Burghey. Of all winter Broccoli I have ever seen I pronounce Snow's (when true) to be the very best. The best to make its appearance here this season is one sent for trial called Hoskings' Broccoli, a most useful addition, growing compact and dwarf, followed by those two really fine varieties Leamington and Watts', both too well known to require further remark. For the latest I find Burghey Champion and Cattell's Eclipse to be the very best. We have the two latter now coming into use. Keep plenty of Lettuces tied up for blanching. Black-seeded hardy Cos is the thing to grow for the winter. In these Lettuces one finds something crisp and good, but French Cos Lettuces grown under cloches are soft, like tissue paper compared with brown paper as regards thickness and substance of leaf. They are really handsome Lettuces, but never did the old proverb, "Beauty is but skin deep," apply better than in the case of these French Lettuces.

KITCHEN GARDEN.

Broccoli.—For these three years past Broccoli has been scarce, but this season gives us once again a good supply. The varieties which we grow here are Snow's Winter White, which we begin to cut in November, and they last well up to February; we then commence with Osborn's, Watts' Excelsior, Leamington, Burghey Champion, and last, but not least, Cattell's Late White. We find this selection to last up to the middle of May, when the handlight Cauliflowers succeed them.—R. GILBERT, Burghey.

Badly flavoured Mushrooms.—My Mushrooms are thin and badly flavoured. What is the cause?—M. [On referring this question to Mr. Gilbert, Burghey, he says, "The great point to be kept in view in growing good Mushrooms is to keep all the ammonia possible in the manure, instead of drying it out under sheds, as so many do. Ours are grown in lean-to beds, on which they make their appearance in huge clusters; but remember our spawn is good and fresh. It can be bought good, but may be made. One bushel of sheep droppings and one bushel of horse droppings well worked up with a small drop of manure water, and well beaten down in the corner of a damp cellar is the way to produce what I term natural spawn." That at least is my way.]

Mushroom culture in meadows.—The following mode of growing Mushrooms in meadows by one of our customers may be interesting to your readers: In March he begins to collect droppings from the stables. These, when enough have been gathered together, are taken into the meadow, where holes dug here and there, about 1 ft. or 18 in. square, are filled with them, the soil removed being scattered over the surrounding Grass. When all the holes have been filled and made solid, he then places two or three pieces of spawn, about 1 in. square, in each hole, treads all down firmly, replaces the turf, and beats it tightly down. Under this system in August and September Mushrooms appear without fail in abundance and without any further care. The method is simple and the result certain. Therefore, all who happen to have a meadow, paddock, or Grass field, and are fond of Mushrooms should try the experiment. Now is a good time to do so, and, of course, the more holes spawned the greater the crop. In the case in question fresh holes were spawned every year, though that operation may not be absolutely necessary.—JAMES CARTER & Co., High Holborn.

SOCIETIES.

ROYAL HORTICULTURAL SOCIETY.

APRIL 25.

The following new plants were awarded first class certificates by the floral committee:—

MASDEVALLIA HARRYANA IMPERIALIS.—A magnificent variety, the finest that has yet appeared in cultivation. The flowers measure fully 2½ in. across, the colour, a glowing magenta-crimson, deepening intensely towards the hook-like tails of the sepals. Shown by Mr. R. Warner, Broomfield, Chelmsford.

ALSOPIHIA REBECCÆ.—A handsome tree Fern, with broad fronds from 2 ft. to 3 ft. in length, bipinnate, the upper surface of a glossy deep green, which with the almost black stipes makes a striking contrast. From Mr. W. Bull, Chelsea.

GYMNOGRAMMA LAUCHEANA GRANDICEPS.—An extremely elegant variety of a gold Fern, differing from the typical form in having the tips of the fronds broadly tasselled, as in *G. Wettenthaliana*. It is a valuable addition to stove Ferns, and one that probably will be much sought after. Exhibited by Messrs. G. Dixon & Co., The Nurseries, Hackney.

RHODODENDRON ALICE MANGLES.—A splendid hybrid, raised by Mr. Mangles, Valewood, Haslemere, between *R. Aucklandi* and the common *R. ponticum*. The progeny is intermediate between the parents, and distinct from both. The flowers, produced in a huge loose truss 9 in. high and as much across, are between 4 in. and 5 in. across, shallowly bell-shaped, of a most delicate rose-pink, flushed with a deeper hue. The foliage is large and very vigorous, indicating a fine constitution. This variety is certainly one of the most beautiful of all Rhododendrons, and probably hardy. Shown by the Rhodod.

PANSY MRS. LLEWELLYN.—A bedding variety of dwarf, robust, and free flowering habit. The blossoms are some 2½ in. across, of fine form and of a rich golden yellow with almost black centre. Exhibited by Mr. Hooper, Vine Nursery, Bath.

AUBRIETIA VIOLACEA.—A bright and very fine variety of the dark flowered section. The flowers are above the average size, and most profusely produced on dense spreading tufts, and they vary from the most intense purple to a paler hue. Shown by Mr. R. Dean, Ealing.

VIOLA MRS. LAING.—One of the bedding section, very free in growth, dwarf, and extremely floriferous. The blossoms are creamy white, with a conspicuous dark centre. The fine symmetrical form and firm texture of the flower add a good deal to its high quality. Mr. Hooper, Bath.

Other new plants from Messrs. Veitch included *Croton chrysocarpus* and *C. Drageanus*, both robust and handsome plants; *Azalea indica* Eliza Licher, with large semi-double white flowers; *Deutzia Fride* of Rochester, with elegant racemes of pure white double flowers; *Caladium Princess Beatrice*, and *Zephyranthes macrophylla*.

A few plants from Mr. Bull's nursery comprised two pretty forms of *Cattleya Mendellii*, named *conspicua* and *elegans*, two forms of *Odontoglossum Halli*, called *pictum* and *leucoglossum*, the latter remarkable for its white labellum, and an elegant dwarf *Maidenhair* called *A. Pacotti*.

Cut blooms of *Calceolaria bicolor* came from Messrs. Dickson, Chester, which showed well what a pretty plant it is, and being such a continuous flowerer makes it all the more desirable. The new *Iresine formosa* was again shown by Mr. Goldsmith, the raiser, the colours being brighter than when shown in the winter. A new variegated Violet called *Viola Watsoniana*, said to have been found at Battle, came from the Rev. H. Watson, Malherbe, Maidstone. It so much resembles some of the silver-edged Pelargoniums, that it might be readily mistaken for one. It is an interesting plant.

For a superb specimen plant of *Masdevallia Lindenii*, the committee awarded a cultural com-

mentation to Mr. F. Horsman, Rose Mount Nursery, Ilkley. It bore about sixty blossoms all fully developed amidst a sheaf of heathy green foliage. It is evident that Mr. Horsman knows how to deal with this lovely Orchid. Besides the variety cultivated, Mr. Warner exhibited two other forms of *Madevalla Haryana*, one named *rosa-violacea* with flowers of a delicate rose-pink, very distinct and beautiful, the other reflexa, which is remarkable for the peculiar manner the sepals invariably reflex.

A basketful of choice cut blossoms of hardy plants from Mr. G. F. Wilson, Heatherbank, Weybridge, included a very finely grown *Trillium grandiflorum*, as finely developed as we have ever seen it; the superb *Primrose* Hermann Wilson, and other *Primroses* and *Polyanthuses*, and *Ranunculus Helderichianus* shown on a former occasion. From the Royal Horticultural Society's Gardens, Chiswick, came excellent specimens of *Iberis Fruiti* and *I. gibraltaria*, a very dwarf white *Candytuft*, *Myosotis elegantissima*, the new variegated leaved *Forget-me-not*, and a bunch of the handsome *Genista precox*, alluded to last week.

FRUIT.—There were but very few exhibits. Mr. Lyon, Sundridge Park, sent a dish of Keen's Seedling Strawberries, of good size and excellent colour. A cultural commendation was awarded. Mr. H. Harding, Orton Hall, Peterborough, showed four dishes of Apples of the following varieties, all in good condition: Wellington, Norfolk Beefing, Striped Beefing, and Baldwin's. Mr. R. Veitch, Exeter, sent examples of Merton's Late White Broccoli, which was not considered of sufficient merit to receive an award. Mr. W. Gallop, Badford Deverell, sent a seedling scarlet-fleshed Melon, which was considered by the committee fairly good for the season. A dish of John Apples from Chiswick were considered of very good flavour.

Promenade Show.—The large conservatory presented a very gay appearance on this occasion, being filled with hosts of beautiful plants, and we could hardly risk an opinion as to which attracted the most attention, the splendid show of the Auricula Society displayed on one side of the building, or the magnificent groups of flowers arrayed along the other, for both were as fine as could well be. Leaving the Auriculas for a separate notice, there were a few things among the miscellaneous collections worthy of note.

ROSES.—Probably there never has been such a marvellous exhibition of pot Roses at such an early date as was shown on this occasion by Messrs. Veitch, Paul, and Lane, and these were supplemented by some highly meritorious cut blossoms from Messrs. Piper, of Uckfield, and Mr. Hooper, of Bath. The group from Messrs. Veitch, numbering some three dozen plants, was arranged in a semi-circular mass, and consisted entirely of standards, but in order to obviate the naked appearance of the stems there was a dense undermass of small plants of *Acer dissectum*, so that the Roses appeared to rise out of a carpet of most elegant leafage, which besides lent a charm to the flowers. Every plant in the collection was a marvel of cultural skill, so different from the usual stamp of standard Roses, for each carried a huge spreading head of vigorous foliage and numerous flowers—some as many as a score—of really high quality as regards size, form, and colour. The most remarkable point about this collection is the extremely small size of the pots compared with the large plants, and the fact that the majority of the plants had not been repotted for four years renders it the more remarkable, but the plants, in order to develop so finely, have been sustained by the judicious application of Clay's Fertiliser, a fact which speaks well for that manure. Some of the most noteworthy plants in this collection were La France, Mons. Noman, Midle, Lacharme, Philip Bardot, Jean Liabaud, Marquise de Castellane, Magna Charta, Maréchal Niel, Prince Camille de Rohan, Marchioness of Exeter, Paul Verdier, and Edouard Morren, all of which seem to be well adapted for early flowering in pots.

The Waltham Cross Roses were also very fine, and Messrs. Paul showed some of the Roses of their own raising to perfection on this occasion, particularly Magna Charta, Pride of Waltham, Countess of Rosebery, all Hybrid Perpetuals of the highest quality and excellence for early flowering. Among other sorts very fine were Fisher Holmes, Duke of Edinburgh, Marie Van Houtte, La France, John Hopper, and Charles Lefebvre, all of which formed dwarf spreading specimens. Besides these Messrs. Paul showed a very fine new seedling with very dark crimson flowers, which will, no doubt, be heard more of later in the season. A new Tea-scented variety called *Etoile de Lyon* was shown. The flowers are of beautiful form and of a delicate primrose yellow, which, with the deep and reddish-green foliage, makes a charming contrast.

The collection from Messrs. Lane & Son, Berkhamstead, was a fine one, comprising some two dozen large specimens superbly flowered, amongst them being excellent examples of *Marquise de Castellane*, *Madame Victor Verdier*, *Etienne Levet*, *Madame Gabriel Luizet*, *Perfection de Monplaisir*, *Hippolyte Jamin*, *Madame Lacharme*, and *Souvenir d'un Ami*.

Among the cut Roses the collection from Mr. Piper, Uckfield, was superb, and showed well what the climate of mid-Sussex can do in bringing out the high qualities of Roses in spring; such Roses, in fact, as would not be inferior to those at shows in July. A splendid trayful of Tea varieties included such charming sorts as *Madame Bravy*, *Madame Willermoz*, *Marie Van Houtte*, *Niphetos* (particularly fine), *President*, *Madame Hippolyte Jamin*, *Catherine Mermet* (very fine), and *Reine Marie Henriette*, a most beautiful Rose, and may be best described as a red *Gloire de Dijon* with a climbing habit. All these were excellent, and indicated high class culture in a remarkable degree.

A fine display of *Amaryllis* was made by Mr. B. S. Williams, consisting of two or three dozen superb varieties, for the most part characterised by that brilliancy of colour and exquisite form of flower which has so long occupied the attention of Mr. Williams. The beautiful variety *Dr. Masters*, which we have had occasion to note previously, was shown to perfection in various stages of expansion, a fact which shows plainly what a long flowering season the variety has. Such kinds, such as *Firefly*, *Mrs. Rawson*, *Prince of Orange*, *Rubicaunda*, *Scarlet Gem*, *Loveliness*, *Eclipse* were also of the highest quality.

A group of *Clematis* from Mr. Noble's nursery at Ascot was a great attraction, though scarcely so fine as shown by this exhibitor last year. The collection, numbering some two or three dozen moderate sized plants, included several new varieties. Among those with white flowers the most noteworthy were *Duchess of Albany*, *Miss Bateman*, and *Maud Branscombe*, the latter having a delicate flush of pink in the flowers. Purple varieties included *Duke of Albany*, very fine; *Harry Richmond*, and *Lord H. Devereaux*, and among violet-purple were *Daniel Denon*, *Madame Torriana*, both superb sorts. A new double named *Darwin* is one of the finest kinds we have yet seen, the colour being a soft violet-purple, and similar to it but darker was one called *Elaine*. Judging by this collection, we presume that Mr. Noble's finest sorts, such as *W. E. Gladstone* shown last year, are not yet in condition.

From Messrs. Barr & Sugden, Covent Garden, came an extensive miscellaneous display, consisting for the most part of *Narcissis*, *Anemones*, *Fritillaries*, *Tulips*. The *Narcissis* were well represented by the latest varieties, such as the poetic group and the hybrid races obtained therefrom, and the fact plainly illustrates the long time over which the flowering season of the *Narcissis* now stretches, for it is some two months since the first exhibition was made by this firm. A numerous group of named *Tulips* from Captain Patton's garden, Alpha House, Regent's Park, was an attraction, as it showed well what could be done even in a town garden. The *Tulips* were supplied

by some excellent specimens of *Astilbe barbatra* (*Spirea japonica*) and *Dielytra spectabilis*.

A collection of new perennial flowering Carnations was shown by Mr. C. Turner, of Slough; and the following varieties were selected by the committee of the National Carnation and Picotee Society as worthy of certificates of merit, viz., *Rufus*, a rich scarlet self, slightly shaded with a dark tint, large, full and fine form; *Whipper-in*, scarlet flaked with black, very fine; *Enochantress*, pale rose or deep pink, flaked with dark purple, distinct and very fine; *Hector*, pale red, fine petal, full substance, extra fine; *Conqueror*, salmon-rose, slightly striped with purple; *Juliette*, pale bright rose, very fine, and full substance, good petal; *Nimrod*, clear pale red, very fine smooth petal, large and full; *Premier*, bright crimson, fine in colour, a little rough; and *Fiancé*, pale ground, the petals deeply edged with a dull dark red, fine petal. In each case the habit of growth was all that could be desired.

A highly attractive group of *Primula Sieboldi* in named varieties was shown by Messrs. Cannell and Sons, Swanley, besides cut blooms of *Zonal Pelargoniums*, *Mimulus*, and an extensive and remarkably fine group of the large white *Marguerite*. Some well flowered specimens of *Azalea* came from Mr. Brown; a large collection of Pansies, consisting of about fifteen dozen blooms of the finest varieties, from Mr. Hooper, Bath, who likewise showed a good collection of *Auriculas* and *Tea Roses*. A large group of miscellaneous plants from the society's garden at Chiswick added largely to the effect of the show, being bright and tastefully arranged.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.—Larches attacked by larvæ.—Mr. MacLachlan reported on some specimens of Larch twigs received from Mr. R. Clutton, of Hartswood, Reigate, who stated that thousands of young Larches were attacked by larvæ at Box Hill. The affected trees swarmed with little grubs, which move about in their cocoons and seem to suck the juices from the young foliage, leaving it dead, and so kill the trees. They proved to be the larvæ of a minute moth (*Coleophora laticella*), which lays its eggs on the twigs or buds. The larvæ hatched in autumn construct cases of cuticle, &c. The young autumn larvæ attach their cases to the young leaves in spring, which they soon mine and destroy. Mr. MacLachlan remarked on the genus *Coleophora*, of which there are about 60 species in Britain, that it is remarkable for the intimate connection between particular species of moth and particular species of plants. He is of opinion that the damage done by this insect is not likely to seriously injure Larches any more than the familiar case of the leaf-mining larvæ of *Cistiocampa laburnellum*, which attacks the Laburnum. The application of remedies, such as sulphur, Paris green, or smoke from burning rubbish on the weather side, might be too difficult or expensive, or, in the latter case, probably ineffectual to prevent future attacks. He remarked that Box Hill, being chalk and dry, was probably not well suited to the growth of Larches. He suggested the root of plants.

—These were received from Mr. Slorove, Reigate, and were referred to Mr. MacLachlan to examine and report upon. Fertilisation of Hoya.

—Mr. W. G. Smith exhibited flowers and a drawing to show how flies extract the pollinia and transfer them to other flowers. Their feet get fixed to the glutinous disks; by struggling to free themselves they extract the pollinia. These, having elastic caudicles, clasp the feet of the fly, which then on alighting on another flower in a more advanced state, as the *Hoya isoproterandrus*, stamps them down on to the stigmatic surfaces. If it be a weak fly, it often perishes on the flower; if a strong one, it usually escapes, but sometimes leaves part of its leg behind. *Rhododendrons*.—Mr. Mangles exhibited a collection of species and hybrids, of which the following were particularly worthy of note: Hybrid between *R. Griffithianum* and *R. ponticum*, partaking much of the character of the former species in flower and foliage, with ten very large pale pink flowers arranged in a pyramid, the stamens varying in number. The

leaves are very large, of a rich dark green. This hybrid blossomed for the first time and is eight years old, and is hardier and dwarfer than R. Griffithianum. It is the first of a large series of plants raised from similar crosses. Hybrid between *Azalea mollis* (male) and *R. ponticum* (female), having the hairy corolla of the former, but with evergreen leaves—the *co* verse cross will not succeed. Hybrid, raised by Mr. Parker, the offspring of the hybrid Countess of Haddington, crossed by R. Edgworthii.—It has large, white, scented flowers, tubular, with a dash of lemon at the base of the corolla. Of species, he exhibited *R. glaucum*, dwarf, and densely covered with pink, bell-shaped flowers, and highly aromatic. *R. Thomsoni* and *R. Chamæcisus*.—An alpine species received from Mr. Otto Forster, from the Austrian Alps. It is a lime-loving plant, with pink flowers. Mr. Mangies also showed interesting hybrids from Mr. Luscombe's gardener (Mr. Dawe), also *R. Falconeri* (?) from Capt. Rogers, of River Hill. Gentiana variety.—Mr. G. F. Wilson showed flowers of this plant, grown with and without lime. In the latter case they were grown in all kinds of soils, but never succeeded. The colour was darker, but without the white centre. With lime the plants thrive well, and at once acquired their true alpine character. Sir J. D. Hooker suggested similar experiments should be made with *Primula farinosa*. Bifurcating leaves of *Narcissus poeticus*.—Mr. G. Bunyard forwarded leaves which had their apices split and curled. It was suggested by the chairman that they had received some injury when young, possibly having been pinched by birds.

AWARDS.

Silver-gilt Flora medal to Messrs. Veitch & Sons for Roses.

Bronze Banksian medal to Mr. B. S. Williams for *Amaryllis*.

Silver Flora medal to Messrs. Wm. Paul & Son for Roses.

Silver Flora medal to Mr. C. Bown for *Azaleas*.

Silver Flora medal to Messrs. Lane & Son for Roses.

Silver Flora medal to Mr. Noble for group of *Clematis*.

Bronze Banksian medal to Capt. Patton for Tulips.

Bronze Banksian medal to Messrs. Cannell & Son for *Primula Sieboldii*, &c.

Bronze Banksian medal to Messrs. Barr & Sugden for *Narcissi*, &c.

Bronze Banksian medal to Mr. Piper for cut Roses.

Bronze Banksian medal to Mr. Hooper for *Pansies*, *Auriclas*, &c.

NATIONAL AURICULA SOCIETY.

SOUTHERN DIVISION.

APRIL 25.

THE Auricula and its allies are again to the fore, and the society devoted to its interests might well be proud of the fine exhibition that was held under its auspices in the conservatory at South Kensington on Tuesday last. It was generally admitted that it was one of the best and most extensive shows of the kind that has yet been seen since the society originated some few years ago. Every class in the schedule was well represented, particularly the classes for single specimens, which as usual were numerous, so numerous, in fact, as to lead to no little confusion in the matter of judging, and particularly in reporting, and it would be better for all concerned if some little readjustment of the existing system was carried out before another show took place. As may be seen by the prize list below, exhibitors from the north carried off the leading prizes in most of the classes, a result doubtless due in some measure to the mildness of the season being against the southern growers.

CERTIFICATES OF MERIT were awarded to the following new varieties: *Agamemnon* (Horner), *Jumbo* (Douglas), *Mrs. Moore* (Douglas), *Blue Bell* (Horner), *George Rudd* (Woodhead), *Luna* (Horner), *Mrs. Dowell* (Woodhead), *Rev. Godfrey Horner* (Horner), *Brunette* (Pohlman), *Duke of Albany* (Douglas), *Amelia Hardwidge* (Douglas), *Princess Waldeck* (Douglas), *Ada Hardwidge* (Douglas), and *Amazon* (Turner), the last four alpine varieties.

PRIZES FOR NEW AURICULAS.—The prizes offered for seedling Auriculas had, as might be expected, a peculiar interest for cultivators, and a goodly number of new flowers were staged, generally of fine character. In the class for green-edged varieties the first prize was awarded to a very large flower named *Agamemnon*, raised and shown by the Rev. F. D. Horner, having a bright green edge with a slight beading of meal on the margin; body colour dark and well defined, dense white solid paste, and golden tube, very fine pip and truss; 2nd, a bright green, raised and shown by Mr. J. Douglas, named *Jumbo*, edge clear, distinct, and of a lively green, body colour claret-black, good white paste, and medium tube, fine truss. In the grey class the place of honour was awarded to *Mrs. Moore*, raised and shown by Mr. J. Douglas, smooth grey edge of good substance, fine pip, black body colour, well defined, golden paste, form a symmetrical truss; 2nd, the Rev. F. D. Horner with his *Blue Bell*, a very pretty and attractive flower, having a bright violet-purple body colour, good paste, large circular pip and excellent truss, with handsome meal foliage; equal second, *George Rudd*, raised and shown by Mr. Woodhead, Halifax, golden tube, pure white solid paste, black body colour, and good edging, pip circular and truss well displayed; also awarded a first-class certificate of merit. The best white edge exhibited was *Mrs. Dowell* (Woodhead), pale in the tube, good paste, dark body colour, large and refined pip, well defined edge, even in all its parts; 2nd, the Rev. Godfrey Horner (Horner), a flower of superior quality, rich golden tube, dense and smooth, white paste, dark body colour, well defined edge, and finished pip. The best self Auricula was *Brunette*, raised and shown by Mr. H. Pohlman, of Halifax, a superb flower, having a broad and well defined black margin, good paste, scarcely so circular as could be desired, pale tube, very distinct, fine pip and truss, handsome meal foliage, and vigorous grower; 2nd, *Duke of Albany* (Douglas), a rich, dark self, solid white paste, golden tube, circular and smooth in all its parts, and with unmealed foliage.

In the classes for seedling alpinas, the best variety with golden centre was *Amazon* (Turner), bright golden centre, a maroon base to the marginal colour, edged with bright rosy cerise, smooth and very fine, a first-rate shaded flower; 2nd, *Princess of Waldeck* (Douglas), clear golden centre, dark base to the marginal colour, shaded with deep cerise, a very pretty and effective variety. *Amelia Hardwidge* (Douglas), a fine golden-centred flower, having a dark base to the margin shaded with bronze and cerise; very pretty and striking. In the class for white centres *Charles Darwin* (Turner) was placed first; it has a clear white centre with a base of dark velvet and a slight edge of bright purple; small in the pip as shown, but a variety capable of being seen first rate in all respects; 2nd, *Ada Hardwidge* (Douglas), pale centre, with a dark velvety base to the marginal colours, edged with pale bright lilac-purple; a little small, but very promising. There were many other new alpinas, but the foregoing were the cream of those shown. Prizes were offered for new gold-laced Polyanthus, but none were deemed good enough to merit them, though a few seedlings were shown.

The classes for twelve, six, four, and two plants were all numerously represented. In Mr. Horner's dozen were *Erebus*, *Heroine*, *Ajax*, *Excelsior*, *Luna*, all raised by the exhibitor; *Moonlight*, *Frank Simonite*, *Mrs. Douglas*, *Lancashire Hero*, and *C. J. Perry*, all with finely developed trusses and fine pips. In the second best collection were *Brunette*, *Blackbird*, *Confidence*, *Colonel Taylor*, *Prince of Greens*, and *Acme* in superb condition; and in the other collections the most remarkable plants were *Charles Turner*, *Frank Simonite*, *Ne Plus Ultra*, *Pizarro*, *George Lightbody*, and *Lancashire Hero*. Mr. Horner was also first with six, showing *John Daltry*, *Heroine*, *Prince of Greens*, *True Briton*, *Lord Clyde*, and *G. Lightbody*. There were five other collections shown in this class. In the class for four Mr. Penson was first with *Eliza*,

F. Simonite, *Lancashire Hero*, and *George Lightbody*. Some half-a-dozen other collections were shown. Pairs of plants were very numerous, and Mr. Penson was first here also with *George Lightbody* and *Lancashire Hero*.

SINGLE SPECIMENS.—In the class for a grey edged variety *George Lightbody* was shown for the whole of the prizes with the exception of the fifth prize, a fact that speaks highly for the variety, *Prince of Greens* was shown by Mr. Horner for the first in the class for green-edged sorts, *Col. Taylor*, *Imperator*, *Prince of Greens*, *Talisman* taking the other prizes. The selfs were shown splendidly, the prizetakers being the varieties *Ringdove*, *Blackbird*, *Topsy*, *Pizarro*, *Garibaldi*, *Lord of Lorne*, and *Sapphire* in the order named.

There were three collections of fifty plants, which of course made an extensive show, Mr. Douglas was, as last year, first with a capital collection, remarkable for the uniform quality of the plants together with a great number of varieties, the selfs being particularly fine, such as *Metropolitan*, *C. J. Perry*, *Topsy*, *Lord Lorne*, *Pizarro*. The Slough collection which was second, was also noteworthy for the excellence of the specimens, though perhaps inferior to the other as regards size of truss. It contained, moreover, more self varieties than that from Loxford Hall. The other collection from Wales, was a good one, especially having regard to the long journey it had undergone.

ALPINE VARIETIES.—The improvement that has been effected in this section has made them very popular, and on this occasion they seemed to attract attention more than any other class. Mr. Turner, who has done more in improving these charming flowers than any one, showed them splendidly. In the collection of twelve which won the first prize the following beautiful kinds were in fine condition: *Unique*, *John Bull*, *Philip Frost*, *Sensation*, *Fred. Copeland*, *William Fowle*, *King of the Belgians*, *Dr. Denny*, *Ethel*, and *Superb*, all of which were among the cream of the numerous varieties that have been raised at the Slough nursery. These varieties were also shown in the collection for six. The classes for single specimens of alpinas were large. In that for gold centred varieties *Amazon*, *Princess Waldeck*, *Amelia Hardwidge*, and *King of the Belgians* took the prizes in the order named, the new *Amelia Hardwidge*, raised by Mr. Douglas, taking the third, fourth, and fifth prizes—a proof of its excellence. In the class for white-centred sorts *Charles Darwin*, *Mentor*, *Queen Victoria*, *Gladstone*, and *George Lightbody* were the prizetakers. The fancy Auriculas were not numerous, and they evidently do not find much sympathy with general Auricula fanciers, though some of them are extremely pretty, particularly the laced varieties, which show a beautiful transition of colour in their flowers from almost white to the most intense purple.

POLYANTHUSES.—These were not numerous, though what they were were of high quality and represented the old florists' varieties to perfection. In Mr. Barlow's collection of six, which was first, were *Prince Regent*, *Cheshire Favourite*, *Exile*, *Firefly*, and *Sunrise*, a most charming variety, and likewise the finest red ground varieties in the show, being good in every point. Among other collections were *Buck's George IV.*, *President*, and *Lancer*.

Hardy Primulas were as usual poorly shown, only one collection being worth mention, and in this the most noteworthy plants were varieties of P. Sieboldii, or P. cortusoides amœna. On the other hand, Primrose were very good, particularly the collections from Messrs. Dean and Brockbank, which showed the beauties of the flower to perfection.

Lecture.—In the course of the afternoon Mr. Shirley Hibberd delivered an interesting lecture on the "Early History of the Auricula," for a full account of which, however, we regret we have no space.

LIST OF AWARDS.

- 12 varieties.—1, Rev. P. D. Horner, Kirkby Malzeard, Ripon; 2, Mr. E. Pohlman, Halifax; 3, Mr. T. Woodhead, Shebden, Halifax; 4, Mr. J. Douglas, Loxford Hall, Ilford; 6 varieties.—1, Mr. Horner; 2, Mr. Woodhead; 3, Mr. Douglas; 4, Mr. Pohlman; 5, Messrs. Cannell, Swanley; 6, Mr. Llewellyn, Pelfergare.
- 4 varieties.—1, Mr. R. K. Penon, Dinham Hall, Ludlow; 2, Rev. E. L. Fellows, Wimpole Rectory, Royston; 3, Mr. E. Gordon, Eccles, Manchester; 4, Mr. S. M. Robins, Lewisham; 5, Mr. T. Fife, Reading; 6, Mr. W. Brockbank, Brockthurs.
- 2 varieties.—1, Mr. Penon; 2, Mr. W. Bolton, Warrington; 3, Mr. Brockbank; 4, Mr. Fellows; 5, Rev. H. Dombrain; 6, Mr. S. Barlow.
- Single specimen, green-edged.—1 and 2, Mr. Horner; 3, Mr. Woodhead; 5, Mr. Brockbank; 6, Mr. Horner.
- Grey-edged specimen.—1, 2, and 3, Mr. Penon; 4, Mr. Pohlman; 5, Mr. Penon; 6, Mr. Pohlman; 7 and 8, Mr. Horner.
- White-edged specimen.—1, Mr. Woodhead; 2, Mr. Douglas; 3 and 4, Mr. Pohlman; 5 and 6, Mr. Douglas; 7, Mr. Horner; 8, Mr. Penon.
- Single specimen, self variety.—1 and 2, Mr. Horner; 3, 4, and 5, Mr. Douglas; 6, Mr. Bolton; 7, Mr. Horner; 8, Mr. Douglas.
- 60 plants.—1, Mr. Douglas; 2, Mr. Turner, Royal Nursery, Slough; 3, Mr. Llewellyn.
- 12 alpine varieties.—1, Mr. Turner; 2, Mr. Llewellyn; 3, Mr. Douglas.
- 6 alpine varieties.—1, Mr. Douglas; 2, Mr. Turner; 3, Mr. Fellows; 4, Mr. Llewellyn; 5, Mr. R. Dean, Ealing.
- Single specimen, alpine gold-centre.—1, Mr. Turner; 2, 3, 4, 5, and 6, Mr. Douglas.
- Single specimen, alpine white-centre.—1 and 2, Mr. Turner; 3 and 4, Mr. Douglas; 5, Mr. Turner; 6, Mr. Douglas.
- 6 Polyanthuses.—1, Mr. Barlow; 2, Mr. Bolton; 3, Mr. Douglas.
- 3 Polyanthuses.—1, Mr. Barlow; 2, Mr. Bolton; 3, Mr. R. Dean.
- 12 fancy Auriculas.—1, Mr. Barlow; 2, Mr. Bolton; 3, Mr. Dean.
- 12 Polyanthuses.—1, Mr. R. Dean.
- 12 single and double Primroses.—1, Mr. Brockbank.
- 12 hardy Primulas.—1, Mr. Llewellyn.

ROYAL BOTANIC SOCIETY.

APRIL 26.

The second spring show of this society, which was held on Wednesday last, was neither so extensive nor of such high character as corresponding shows of previous years, and as with the last spring show so with this, it partook of the general character of the show on the previous day at South Kensington; in fact, the majority of the exhibits were the same at both places. We will, therefore, confine our remarks to those of the exhibits that were not shown previously.

ROSES.—The principal feature of the show was the Roses, which were, indeed, very fine. There were the superb groups from Messrs. Paul & Son, Lane and Son, Piper, supplemented by the collections in competition for the prizes. In the nurserymen's class there was only one exhibitor (Messrs. Paul & Son, Cheshunt) who sent a splendid collection of nine plants of large size, though in comparatively small pots. There were fine examples of Mrs. Laxton, La France, Edouard Morren, John Stuart Mill, Mad. Lacharme, Magna Charta, Juno, and in addition to these Messrs. Paul showed a collection of smaller specimens, and some glorious baskets of cut blooms of *Maréchal Niel* from the same plant as the blooms shown last year, so much admired. Messrs. William Paul, of Waltham Cross, likewise had a superb display of cut blooms, among which the glowing deep colour of Duke of Edinburgh stood prominent from all the rest. The amateur's class was, as usual, not well represented, there being but two exhibitors, and in both of the collections the plants were small, but very healthy, with blooms of good quality, the varieties being Mrs. Bosanquet, Marquise de Castellane, Marguerite Brasseur, Baroness Rothschild, and Hon. George Bancroft.

NEW ROSES.—Messrs. Paul, Cheshunt, were the only exhibitors of six Roses sent out in 1879 and 1880. They included *Madame Isaac Perière*, large,

pure crimson; *Gloire de Bourg-la-Reine*, very deep crimson; *Mad. Angele Jacquier*, a large Tea variety, bluish tinted; *Jules Finger*, pink; *Comtesse Comondo*, very deep crimson; and *Guillaume Gillemot*, deep rose.

PELAGONIUMS were well shown considering the early date. Mr. Turner's collection being uniformly very fine. His plants were large and extremely well flowered, the varieties being *La Patrie*, Duchess of Bedford, Princess Hortense, Digby, Grand Sappho, Maid of Kent, La Grande Venus, and Duchesse de Morny. Most of these belong to what is called the decorative class, a race of Pelargoniums that deserve to be largely grown for early flower; the varieties mentioned include some of the best. In Mr. Little's group were good plants of *Kingston Beauty*, *Mad. Thibaut*, *Bracelet*, *Enchantress*, *Admiration*, *Rosy Morn*, and *Emperor of the Pelargoniums*, the last an uncommonly bright and attractive variety.

AURICULAS.—There was an extensive display of these, large groups being shown by Mr. Turner and Messrs. Cannell besides the competing collections. The best twelve, from Mr. Douglas, consisted of *Lord Lorne*, *Blackbird*, *Ne Plus Ultra*, *John Waterton*, *Alexander Meiklejohn*, *George Lightbody*, *Lancashire Hero*, *Dr. Horner*, *Juniper*, *Smiling Beauty*, and *Mrs. Moore*, all superb specimens. In the other three collections, from Messrs. Turner, Llewellyn, and Cannell, were such beautiful sorts as *Topsy*, *Beauty*, *Vulcan*, *Mr. W. B. Brown*, *Imperator*, *Confidence*, *Col. Champneys*, *True Briton*, *Lovely Ann*, *Glory*, *Charles Perry*, *Sultana*, Complete, all of which may class among the finest varieties.

AZALEAS AND RHODODENDRONS.—The only exhibitors of twelve *Rhododendrons* were Messrs. Lane, who had a dozen grand bushes, including such fine varieties as *Atror sanguinea*, *Iluminator*, *Bodartiana*, *Guido*, *Sir Robert Peel*, *Broughtoni*, *Queen of the West*, *Favourite*, *Columbus*, *Azaleas*, on the whole, were poorly shown, the only creditable collection being one from Mr. Turner, whose plants, though not large, were densely flowered, and the varieties were well selected, being *Mlle. Lemoine*, *Queen Victoria*, *Reine de Pays-Bas*, *Roi Leopold*, *Duc de Nassau*, and *Ferdinand Kegeljan*.

STOVE AND GREENHOUSE PLANTS call for no special comment, save that one of the exhibitors was disqualified for having a plant in a 13-in. pot instead of 12-in. With but two exceptions the collections were much below mediocrity; indeed, were scarcely admissible to an exhibition tent. The best collection, from Messrs. Peed, included some excellent *Azaleas* very densely flowered; *A. Jean Vervaeke*, a new sort with bright salmon-tinted flowers, was particularly fine; as, also, *Apollon*, large and pure white; and *Roi de Hollande*, a deep crimson-red. In the disqualified group from Mr. James, Lower Norwood, were some excellent plants, including a pair of *Anthurium Andreanum*, very fine. *Cinerarias* were very good for such a late date—particularly the nine from Mr. Odell. There were but two collections of *Amaryllis*, Mr. Little again showing the finest, which included the varieties *Princess Dagmar*, *Fairstar*, *Galatea*, *Mlle. Titien*.

Among the miscellaneous groups from Mr. B. S. Williams, consisting of *Amaryllis*, *Orchids*, and fine-foliaged plants, was highly attractive likewise the collections of cut and pot Tulips from Capt. Patton, the *Pelargoniums* and other things from Messrs. Cannell, the *Pansies* from Mr. Hooper, and the tastefully-arranged group from Mr. Wheeler, consisting of an admixture of *Coleuses* and *Maidenhair Fern* principally, which had a very pleasing effect.

NEW PLANTS.—These were not so numerous as usual, though on this occasion were far from few. Mr. B. S. Williams showed a *rhododendron* *rhodopterium*, *Cologne* Parishii, *C. Massangeana*, *Asphodela Rebecce*, *Crinum Makoyanum*, *Imantophyllum cruentum*, *Ronbergia Moreniana*, *Amaryllis grandis*, *A. Mrs. B. S. Williams*, *A. macrantha*. From Mr. Bull came *Cereus dasyanthus*, *Cattleya Mendellii elegans* and conspicuous, *Odontoglossum Halli pictum* and *leucoglossum*, *Anthu-*

rium ampliatum, *Davallia fijiensis plumosa*, *Azalea Furston Bariatinski*. From Mr. Turner, Royal Nursery, Slough, *Tree Carnations* *Flambeau*, *Burgundy*, *Hector*, *Whipper-in*, *Rufus*, *Marksmann*, *Enchantress*, *Nimrod*, *Autocrat*, *Premier*, *Conqueror*, and *Juliette*; also *Azalea Phœbus* and *Pelargonium Triomphe de St. Mandé*. Mr. Little contributed three new *Amaryllis* named *Fairstar*, *Galatea*. Messrs. Lane, Berkhamstead, had *Deutzia gracilis variegata*. Mr. Noble, Clematis *Duke of Albany*, *Duchess of Albany*, *Darwin*, *Maud Branscombe*, *Daniel Deronda*, *Princess Beatrice*, and *King Arthur*. Messrs. Paul & Son showed a new Rose called *White Baroness*, and Messrs. William Paul, Waltham Cross, a Tea variety named *Etoile de Lyon*. New *Auriculas* were numerous shown by Mr. Turner, all of the alpine section, the names of which were *Superb*, *Polle*, *Lady Aitchinson*, *Mentor*, *Gladiator*, *Charles Darwin*, *Sappho*, *Hector*, *T. D. T. Llewellyn*, *Amazon*, and *Imperial*.

Botanical certificates were awarded to

CELOGYNE MASSANGIANA, a handsome species with long, graceful spikes of flowers with primrose-yellow sepals and petals, and a chocolate-brown labellum. From B. W. Williams.

MEDINILLA AMABILIS.—Similar in growth and appearance to *M. magnifica*, except that the flower clusters are borne erect and not drooping. The foliage is large and handsome. Exhibited by Mr. W. Bull.

CRINUM MAKOYANUM.—The splendid species alluded to a short time since as being certificated at South Kensington. Mr. B. S. Williams.

GYMNORHAMMA LAUCHEANA GRANDICEPS.—The same as shown at South Kensington. Messrs. Dixon.

ODONTOGLOSSUM HALLI PICTUM.—A form with rather deeper and more defined markings than ordinary. Mr. Bull.

ADIANTUM PACOTTII.—A dwarf Maidenhair form with small dense fronds, in the way of *A. cuneatum*, of which in fact it is a variety. *A. Victoriae*, the handsome variety certificated a short time since at the Royal Horticultural Society. Mr. Bull.

DAVALLIA FIJIENSIS PLUMOSA.—A very elegant *Hare's-foot Fern*, having the long graceful fronds tasselled at the tips. One of the handsomest of stove Ferns. Mr. Bull.

Floricultural certificates were awarded to

AURICULA GLADIATOR, *Mentor*, *Charles Darwin*, *Amazon*, and *T. D. T. Llewellyn*, all varieties of the alpine class with creamy white centres. Mr. Turner.

VIOLA MRS. LAING and **MR. LLEWELLYN**, the same as shown at South Kensington by Mr. Hooper.

PELAGONIUM BRIDESMAID.—A very showy variety of the decorative, having all the good points so much sought for in this type of *Pelargonium*. Mr. Little.

AMARYLLIS MRS. B. S. WILLIAMS.—A variety with finely formed flowers and pure white without any markings whatever. Mr. B. S. Williams.

AURICULA MRS. MOORE and **JUNO**, both of the edged flowered class, and perfection as regards the points of a good Auricula. Both from Mr. Douglas.

CLEMATIS CHARLES DARWIN, *Daniel Deronda*, and *Princess Beatrice*, alluded to in R. H. S. report. Mr. Noble.

AZALEA PONTICA NARCISSEIFLORA.—A most beautiful variety, having double flowers like some of the *Narcissi*, pure rich yellow, delightfully scented. Messrs. Veitch.

LIST OF AWARDS.

12 stove and greenhouse plants (open).—1, Messrs. Peed & Son, Norbury Nurseries, Streatham; 2, Mr. G. Wheeler, gardener to Lady Goldsmid, Regent's Park; 3, Mr. H. Eason, gardener to Mr. Noakes, North Hill, Highbury.

12 *Rhododendrons* (open).—1, Messrs. H. Lane & Son, Great Berkhamstead.

9 Roses in pots (nurserymen).—1, Messrs. Paul & Son, Cheshunt.

6 Roses in pots (amateurs).—1, Mr. Wiggins, gardener to Mr. Little, Hillingdon Place, Uxbridge.

No. 546. SATURDAY, MAY 6, 1882. Vol. XXI.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

NOTES FROM GUNNERSBURY HOUSE.

THE quiet sweep of lawn surrounding this charming suburban residence was lately enlivened by a glorious tree of the Yulan (*Mag-nolia conspicua*), a perfect mass of snowy-white blossoms. This tree is an exceptionally fine one, and as old, we should consider, as any about London, its trunk having a pretty girth. Further down the lawn, across the pretty little lake is a remarkable specimen of the Chinese Crab (*Pyrus spectabilis*) in full flower, a huge mass of delicate tints, which, with the various greens, browns, and yellows of the unfolding foliage of the ornamental deciduous trees by which it is surrounded, has a very fine effect. In the houses, which are filled to overflowing with ornamental plants of various classes, we noted some exceptionally fine specimens of *Croton*s—plants not only large, but possessing foliage with all its characteristic colouring highly developed. Amongst these the most noteworthy were *C. undulatus* and *C. Hookeri*, two of the finest of *Croton*s, and scarcely surpassed by newer varieties. In the cultivation of all fine foliaged plants Mr. Hudson is particularly successful, for, besides *Croton*s, *Alocasias*, *Marantas*, and similar plants, there are some marvellous specimens of *Ferns*; for example, we noticed a plant of *Davallia bullata* fully 5 ft. across, huge plants of *Gleichenia flabellata* and *Mendilli* just developing their new fronds, and a remarkable example of *Dicksonia antarctica*, with a huge stem compared with the head and size of the pot in which it is growing. In order to produce this size of stem, Mr. Hudson plants a layer of Moss round the crown of new fronds annually, so as to keep constantly moist the new roots that are developed. The other houses are chiefly devoted to fruit culture. In the vineries are excellent crops of early Grapes, particularly of the Madresfield Court variety, which is found to force well along with Black Hamburgs for an early crop. In all the houses the most is made of the space. The vineries are filled with flowering and other plants, and in the Peach houses are Strawberries and Roses in pots; nevertheless, both Peaches and Nectarines bear excellent crops. In the fruit garden Mr. Hudson is carrying out some interesting experiments with regard to the pruning of Pear and other trees, the results of which we hope to deal with on some future occasion. Adjoining the mansion is a conservatory, which is kept perpetually gay with bloom, and in this one thing particularly attracted us, and that was the free way in which the plants were growing—we mean free from any training and tying, which so often destroy all grace and beauty. For instance, here is a fine plant of *Chorozema Chandleri* hanging from a transverse box in a most charming way without a tie, and without the branches being pinched and trimmed, as is so often the case in order to get what is called a symmetrical plant. The same want of sticks and ties characterises *Eriostemons* and other hard-wooded plants, as well as *Azaleas*, which are so often tied and trained in the conventional, conical, or balloon-shaped form. Here the bushes are free, yet not unsymmetrical, and every bloom, as it were, tells its own tale and is set off to advantage by the foliage which crops out here and there. Such plants as are seen at exhibitions are generally all flower and no leaves.

W. G.

TREE STUMPS IN ROCK GARDENS.

It is to be hoped that your timely warning in last week's GARDEN respecting the use of tree stumps in the construction of rock gardens will have its due influence with those in charge of the important one now being formed at Kew. Only the other day I was requested to visit a lady's garden in the north of England to advise what was best to be done with an old rockery. I found it to be composed of several cart-loads of tree stumps in various stages of decomposition and burrs, i.e., hard burnt and deformed bricks. I at once recommended entire reconstruction—carting away all roots and tree stumps, and burying the burrs several feet below the surface. We are now making a new rockery with rocks of millstone grit, from $\frac{1}{2}$ ton to $1\frac{1}{2}$ ton in size. When one considers the important position the gardens at Kew hold in relation to the horticultural world and the vast number of people who go there for instruction, everyone must desire that the rock garden there should not only be equal to anything already existing, but that it should be a good head and shoulders above any other work of the kind in the country, so that it may have a stimulating effect upon this most interesting branch of gardening. If we consider for a moment the numbers of plants that can be cultivated even on a moderate-sized rockery, and the different parts of the globe from which they have been brought, the importance of the work will be apparent. Even on the small rockery in front of my house, where only about 6 tons of stone were used, I have representatives from the Pyrenees, Switzerland, Italy, India, and America, &c., and where several hundred tons of rocks are used, the variety of plants employed must be very large indeed, clearly indicating the amount of thought and careful study that ought to be brought to bear on the construction of such a rock garden as that at Kew, and also in the preparation of the soil for the successful cultivation of the plants. For instance, for many years I failed to grow the rare little *Primula glutinosa* until I was informed by Mr. Churchill, who had seen it in its native haunts, that it was always found on porphyry. I at once planted it in granitic soil, and the change was at once apparent. It would be out of place here to go minutely into the compositions of soils, but after many years' experience I am persuaded that this is most important, especially as regards plants that are rare and difficult to cultivate. Some will not thrive in the ordinary soil of our gardens. Let us, therefore, hope that the rock garden at Kew, when finished, may be all that the gardening public could wish.

Holgate, York.

R. FORTER.

MUSHROOMS AND THEIR FLAVOUR.

We think it was Sir William Jenner who told a friend of ours who was suffering from some of the inconveniences of indigestion to omit the Mushroom and other doubtful products from his food. Whether Sir William's advice related to the ordinary London Mushroom or not, we cannot say, but, bearing the fact in mind and experimenting on these esculents, we made up our mind that he was right. The Mushroom of Covent Garden in the winter and spring is one of the most unsatisfactory of esculents as regards texture and flavour. It is generally light in weight, fluffy and leathery, and crowned by a few straws of manure embedded in it. Of the unpalatable and unjuicy character of these products as we generally have them, it would be difficult to give an idea; and whether people suffer from indigestion or not, decidedly they are best omitted. Broiled *cardou* fittingly describes the quality of some we have tried on the gridiron. Our friend Mr. Gilbert, of Burghley, has lately given us evidence, however, that all Mushrooms are not of this character. Those he grows are heavy, juicy, and extremely well flavoured. Why there should be such a great difference is not so clear. Is it

owing to the common way of making the beds of light manure and litter only? It may be that our friend owes his success to the admixture of *Lam*, which the late James Barnes and many other good growers employed. It is reasonable to suppose that a solid bed, partly composed of healthy earth, would give a better result than one wholly made of stable manure. In any case all growers should be as particular about the quality as about the abundance of their Mushrooms. This subject reminds us that many country gentlemen and others in estimating the return from their gardens do not allow for the superior flavour and excellence of the home-grown products. At one time we had much greater admiration for the market goods than at present. The excessive use of manure, which costs little or nothing in London, tends to make all vegetables of the London market gardens "ranker" than is desirable. We are often surprised to find coarse and poor flavour in well known and otherwise excellent vegetables, and can only attribute it to over-manuring and the staleness incidental to vegetables bought in the market. It is not fair to ask our friend Gilbert to divulge all his secrets, even in the interest of the art of gardening, but we think we must draw him out on these fat and well-flavoured Mushrooms.

FRUIT GARDEN.

FRUIT CULTURE IN DEVONSHIRE.

If fruit culture will pay anywhere it ought to do so in Devonshire, that county being exceptionally favoured in the way of climate. Often when the blossoms of Apples and Pears get out off in other parts of England they escape there. Growers in Devonshire therefore stand a better chance of being remunerated for their outlay and labour in planting there than elsewhere. Wherever orchards are to be formed, the situations chosen should be sheltered from north and east winds by high trees or hills, and if surrounded or shut in on those sides by one or the other, the trees are not only in a much better position for escaping spring frosts, but they are also partially protected against gales, which in the autumn tear off the fruit and dash it to the ground long before it is ready to gather. The nature of the soil, too, is of importance. It is useless to plant Apples and Pears with a view to profit unless they can have a good deep loam with a free and natural drainage, conditions under which they seldom or never suffer from excess or want of water, and the roots and bark always remain healthy and clean. Why trees canker or become covered with Moss in the way so frequently seen is because the soil or subsoil is unsuitable to them; it may be from poverty or excess of wet, and a profitable crop under such circumstances is quite out of the question. Drains, to be effectual, must be made deep, as it is not the surface water that does the injury, but that which lies below, and it is only by draining this off that land can be kept in a sweet, wholesome condition. If Moss and stunted growths result from poverty, the only remedy is to top-dress heavily with manure, or feed the Grass off with sheep and pigs; but if cattle of any kind be grazed among the trees, they must be protected by having the stems encased in some way.

Tree guards.—I note that Mr. Garland says he is having strips of wood nailed to his, but that probably is a slip of the pen; and though wood securely fastened so as to form a sort of guard may answer well, it is likely that guards made of iron would be the cheapest and best in the end. Anyhow, sheep must be kept off in some way, for though they do not bark the trees, they rub violently against them, and the grease from their coats seems to have a very bad effect on the rind. Stiffstemmed trees may be secured from harm by having Gorse or sharp Thorn bushes bound round with wire, protection which lasts a number of years and renders them safe.

Varieties.—In forming orchards for profit it is useless going in for many varieties of Apples and Pears; the best way is to keep to the very early and late sorts, as there is generally a glut at mid-season, when only poor prices are obtained. It may be objected that the storing is against late sorts, but the greater part of all produce has to be stored, and nothing pays better for keeping than Apples and Pears. With a suitable place they give little or no trouble after they are gathered, as all that is necessary is to look them over occasionally and pick out any going to decay before they affect others they are lying in contact with. The most valuable Pears are *Gloire d'Orléans*, *Winter Nellis*, *Passe Colmar*, *Bergamot d'Espérance*, and *Josephine de Malines*. These all require a warm, sunny spot, and when thus situated, the whole of them do well either as espaliers or pyramids, and finish up their fruit in a way that when ripe it is highly coloured and of first-class quality.

Pinching and pruning.—To expose the Pears as much as possible to the sun, the branches should be thin and the spurs kept close to them by judicious and timely pinching, as by an early removal of the young shoots, light and air are let in, and the strength concentrated in the formation of blossom buds. To get the trees up to a good size quickly, they should be allowed to grow pretty much as they will, and not pruned or cut hard in, as is too much the fashion, the doing of which retards and throws them back for years. The more top they form, the more root they make, and the quicker they establish themselves and become profitable. All that is wanted in the regulating and training young trees is to nip out any shoots that are misplaced or not wanted for furnishing the frame, and let the others go to become as long and strong as they like. They want no stopping or cutting back, as they are sure to break full of buds up their entire length and form plenty of spurs. The same remarks apply to Apples, which only need thinning out in the winter by removing any shoots that are inside and likely to cross and fill up the centre. The best kinds for market growing are *Blenheim Pippin*, *Cox's Orange*, *Wellington*, and *Sturmer Pippin*; and for summer use, *Keswick Codlin*, *Lord Suffield*, and *Gravenstein*, all of which come in in the order in which they are named.

S. D.

Prices of Apples.—"J. G." (p. 287) takes exception to the prices I quoted for *Wellington Apples*, but at the same time says they might have been realised for good samples of *French Crab*, &c. Now, the price which good *French Crabs* were making in *Covent Garden* the second week in March was from 6s. to 7s. per bushel; *Northern Greenings* the same price; *Wellingtons* from 9s. to 10s.; *Blenheim*s from 10s. to 12s.; and rough Apples from 3s. to 4s. per bushel. One tenant farmer here realised 12s. per bushel for all the Apples he sent to *Covent Garden*, but they were a fine sample sent last month. I have grown *French Crab* and *Wellington* twenty-five years, but I cannot agree with "J. G." that the former is the better sort, nor do the London prices support that view of the case. I doubt much if *Sturmers* would fetch so high a price. I quite agree with him that unless Apples could be bought for less than 2s. 6d. per bushel, or £2 12s. 6d. per hogshead cider making would not pay. Small growers here had a difficulty to get rid of their fruit at 9d. and 10d. per bushel last year, sorts that would make better cider than the *Kentish Apples*. I had something to do with gathering Apples and making cider for some years in *Kent*.—JOHN GARLAND, *Killerton, Exeter*.

Foster's Seedling Grape.—Amongst white Grapes adapted for early forcing, *Foster's Seedling* is deservedly a favourite. It is a strong grower, shows plenty of bunches, and sets freely. It makes a good companion to the *Black Hamburg*, succeeds admirably under the same conditions, and is fit for cutting rather earlier than that variety. We have lately adopted it for early work in place

of the *Royal Muscadine*, which for flavour and general good qualities is probably unexcelled, but of late years the demand for large bunches and large berries has put out of the question all preferences as to flavour. *Foster's Seedling* produces handsome, well-shouldered bunches, with berries equal in size to those of the *Hamburg*. The smaller *Muscadines* and *Frontignans* are now but in little demand, and if I were planting an early Vinery I should certainly include amongst white sorts *Foster's Seedling*. When ripe it has a beautiful golden tint, and keeps well after it is ripe.—JAMES GROOM.

Strawberries and the past winter.—I think Mr. Fish (p. 287) will find that the weakness of his open-air Strawberry plants is local rather than general. We have at present in bloom a quantity of *James Veitch Strawberry* that stood out-of-doors in pots plunged in ashes all winter, and I never saw finer trusses of flower than they are bearing, and whether wintered in frames or in the open, all kinds have flowered freely and strongly. Open-air beds are now looking well, the early kinds on warm borders being in full flower and some even well set (April 29). The open beds of main crop sorts are also looking well, the trusses of bloom coming up plentifully among healthy young foliage. Our beds were all heavily mulched with fresh stable litter in April, and the heavy rains which we are now getting are washing the manurial properties of the litter down to the roots. I may add that nearly all our beds are on strong soil, sloping gently to the south; therefore all superabundant moisture runs off the surface, and the plants get a maximum of sun heat. Even beds of late-planted runners put in solely for yielding a supply of runners for layering in pots are producing fine trusses of bloom. We never cut the old foliage off our Strawberries, as is done by some after the fruit is gathered—a practice which weakens the crown for the next season.—J. GROOM, *Linton, Kent*.

—Mr. Fish complains of forced Strawberry plants put out last season being weak. Did he take a crop off them in the autumn? If so, the reason is not far to seek. Forced plants doubtless always bear a large quantity of fruit, but it is generally inferior in size. If quality in this delicious fruit is a consideration, layer the plants in pots as for forcing, plant them in good land, and they will produce large and fine fruit that will fetch twice the money and give twice the satisfaction which that from forced plants will give. All my Strawberries, both indoor and out, are perfectly satisfactory.—R. GILBERT, *Burghley*.

—Strawberries here, although I only force a few, have been quite a failure; more than half of them have not flowered at all, and those that have flowered have been weak—hardly worth saving. Outdoor plants are quite the reverse; they are strong and healthy and furnished with fine crowns, with the exception of a bed made last year in which the plants are weak.—GEO. CARPENTER, *Ryden, Walton-on-Thames*.

SHORT NOTES—FRUIT.

Muscata Romain Grape.—Permit me to state that in the original description of this Grape in the "Fruit Manual" it is described as synonymous with the white Romain, but not with the *Muscata* of Alexandria. I have not the later edition. The Grape I was familiar with was named *Muscata Romaina*.—PERGRINE.

Sulphate of ammonia.—Will some one kindly inform me if this is a good manure for Vines? and with about what proportion of water should it be mixed?—T.

Seedling Apple trees.—I have an Apple tree about ten years old grown from a Pippin, but it has never borne any fruit. What can I do to induce it to bear fruit?—S. C.

Peach leaves (Enquirer).—They are sun burned, the little drops of moisture forming lenses and killing the tissue under them. Giving air early in the morning, so as to dry the leaves, will probably stop the mischief.

Gooseberry caterpillar.—Gooseberry trees are very much infested with caterpillar this season, and had better be examined; in some places the leaves are perfectly riddled.—J. E. W. GRANGE.

Growing Pines for profit.—I can confirm "D. S." statement that Pines can be grown in frames with leaves for bottom-heat. The late Mr. Barnes, of Bilton, used to grow all his suckers and succession Pines in pits heated by leaves. There was no other means of heating either for top or bottom, and the Pines were perfect. Mr. Barnes being second to none in his day as regards Pine cultivation. I assisted him to manage them for four years.—EROMEGRAB.

Strawberry La Grosse Sucrée.—I find this to be one of the best varieties for a second early crop to come in after *Vicomtesse Héricart de Thury* and *Keen's Seedling*, still the most reliable for very early forcing. *La Grosse Sucrée* is a distinct variety with large, somewhat sparse foliage, and it also keeps to one good crown, and sends up one or two large bold trusses of flowers that produce fine brilliantly coloured fruit on long foot-stalks. It is apparently rather a tender variety for out of door culture, for we have usually a good many gaps in beds of it in spring. Where, however, pot Strawberries are largely grown, it is indispensable, and as it makes runners slowly compared with some robust varieties, it is a sort that requires more than ordinary care to keep up a sufficient supply of plants.—J. G. L.

Fruits for market.—Mr. T. Mason, a Chicago commission merchant, named the following as being good market Apples: He said a bright red was most popular, and Baldwin, Jonathan, Winesap, Red Canada, and Willow Twig sold better than fruits of a dull or rusty colour. Well-coloured Baldwins will sell 50 per cent. better than such as are dull or imperfectly reddened. But the *Red Astrachan*, with its showy appearance, does not sell well because it is a poor shipper, its fine texture tending to rapid decay. Among Pears, the *Bartlett* will probably take the first rank for a long time to come. Among the most saleable are *Clapp's Favourite*, *Flemish Beauty*, *Seckel*, *Louise Bonne de Jersey*, and *Duchesse d'Angoulême*. Black Tartarian is the most saleable Cherry, followed closely by *Early Purple Guigne*, *Gov. Wood*, and *Napoleon*, and *Early Richmond* and *May Duke* among the sour varieties.

EDITOR'S TABLE.

BERBERIS HOOKERIANA.—To a lover of the Barberries (and who that can appreciate beauty of tree or shrub does not care for them, whether evergreen or summer leafing?) the beauty of the above named kind is refreshing. It is distinguished by larger flowers than usual, which, in the bud state, are like little Banksian Roses. Younger still in the green and gold state they are scarcely less pretty. From Mr. Stevens, with other shrubs of the season.

FOTHERGILLA ALNIFOLIA.—This rare shrub reaches us from the Cambridge Botanic Garden, where it is one of the things treasured by Mr. Lynch. It is a low, wiry branched shrub, the twigs of which at this season are tipped with a dense feathery tuft of white blossoms that are sweet scented, and as they appear before the leaves unfold, they are somewhat showy. It is nearly allied to the Dogwood, and is one of the many undershrubs that have their home in the woods of North America. It occurs on the sides of hills in moist soil from Virginia to Carolina. We lately saw it at Kew, and were pleased with its attractive and distinct aspect.

BRITISH ORCHIDS IN GARDENS.—Mr. Webster sends us from Wales a spike of *Orchis mascula* and one of *O. Morio*, which he states at present look charming when in clumps of a score or more plants together. I have, he says, some spikes of the former 6 in. in length, the total length of the plant being 17 in. The *Bee and Man Orchises*

are also in flower, but too few to bear cutting. We know from experience that some of the more free of our native Orchids treated well look charming in gardens, particularly in deep, wetish soils and in the moister parts of the country, where perhaps things from sunnier climes do not succeed. We believe that some of our native Orchids well grown out-of-doors would be not much less effective than fairly grown plants of exotic Orchids indoors. The spikes sent by Mr. Webster were very fine.

HABROTHAMNUS FASCICULATUS OUT-OF-DOORS.—From the Isle of Wight Mr. Ewbank sends us many flowers in great dense clusters of this *Habrothamnus*. It is not generally hardy enough to succeed out-of-doors, but it appears to do so in Mr. Ewbank's garden, at Ryde. He says "it has been growing in the open border for some years. The plant has not been protected at all beyond a handful of coal-ashes thrown over the roots in winter. It has been in blossom a fortnight, and now looks more like an importation from Mr. Hanbury's garden at Moltola than anything else. At any rate, the Isle of Wight and the Riviera are not so very far apart in point of climate. I should be happy if I could only get *Bougainvillea glabra* to flourish in the same way, and I do not quite despair of it." The flowers sent seemed richer and deeper in colour than those produced under glass.

AMARYLLIDS FROM MADEIRA.—Flowers of two very brilliant *Amaryllis* come from Mr. Kingsmill, who brought them from Madeira. He says, "The dark kind, one bulb only, had twelve flowers; the enclosed is part—the best. Of the other I brought part of a clump, and crammed it into a 16-in. pot; it has ten spikes, averaging six blooms each, and this morning twenty-five flowers were expanded; not so bad, seeing it had been twelve days packed tightly after separation with a pickaxe from the clump, which was about 6 ft. through." What these *Amaryllises* really are, we cannot say, but, judging by what Mr. Kingsmill states, and the large size and brilliancy of the blooms before us, we think that they are most valuable garden plants, and should be known more about.

ANEMONES AND THEIR COLOURS.—Messrs. Carter send us a bunch of very large and bold single Anemones, which they intend to send out in autumn under the name of Empress. While admiring these for their size and for their colour, we notice among them colours that would please neither the artist nor the gardener, and we would say rigidly exclude these. The Poppy Anemone is so rich in good colour, that there is no excuse for having varieties in which dingy and unpleasant colours are shown. We are not, we need not say, sticklers for only showy flowers; colours may be beautiful, and yet quiet and low. But colours of various kinds are confessedly bad and weak, and it is not worth while keeping them in the case of a plant rich in good colour. But we should take trouble to secure that good colour by selecting races really refined or brilliant, and destroy without mercy the brick-red, poor white, bad blue, and other colours that occur among these plants. The common way of trusting to a batch raised promiscuously is as if one were to be content with a lot of mongrel curs when he might as easily have fine races of dogs. Consider our advantages as compared with the artist, who cannot always get the colour he wants, even if he has the rare art of colour; whereas we, by selection and increase, can get a fine range in this one hold spring flower alone, and without trouble. Consider, too, how much a gardener could do

with a plant of this sort if selected into distinct races compared with what he can do with indefinite seedlings. So many distinct, telling, or delicate colours may represent so many distinct effects in the garden. Messrs. Carter, or any other good house, would confer a benefit on us by really mastering, so to say, the range of beauty in such a plant as this, and offering it in such distinct forms as we speak of. It is not a question of the old florists' double kinds, which were somewhat delicate and slow and not always good in colour, however their form might satisfy the florist. What we desire is a number of hardy free forms, double, semi-double, or single, as the case may be. But no one can do justice to the family who does not take notice of what is already done. The French *Anemones* of Caen are a very remarkable and vigorous series, which ought to be considered in making a selection. Private individuals who like to cultivate their own tastes may do so profitably by raising shades of colour and types that please themselves. The same remark applies to many other flowers, the value of which is greatly neutralised by the common bed of mixed seedlings.

AURICULAS.—From Mr. Charles Dennis come some large and good seedling Auriculas. What we want among such flowers is quality and distinctness of colour. Poor, washed-out-looking flowers are of no value, and give such plants a bad effect. Mr. Dennis's kinds embrace fringed forms, which are very desirable indeed, so far as we can judge without seeing the plant. Low, quiet colours are as welcome as others if they are good of their kind. Once good colours in each section are obtained, they should be increased for use in the garden, and the seed bed kept at work if need be. If the known kinds are not good enough, by all means raise more, but drop the unrest and monotony of a mixed bed of seedlings. If the good races were represented, one could then tolerate an example of the indefinite mixture of kinds, but the fact is it is the colourless mixture one generally sees. The point is of much importance in the case of many plants. We may treble the value of a plant that suits our soil or climate by selections of the colours that please us, and by having enough of each.

"FROM THE WILD GARDEN, among trees and shrubs in Sir G. Macleay's garden at Pendell Court, Bletchingley," so writes Mr. C. Green in sending samples of what he does in wild gardening. We are glad one who knows so many plants is interested in this, as he knows so well how to place a hardy exotic so that it may increase and multiply. Among the flowers sent are *Trillium grandiflorum*, Poet's *Narcissus*, *Globe Flowers* (*Trollius*), *Leopard's-bane* (*Doronicum*), *Scillas*, *Myosotis dissitiflora*, *Wood Anemones*, single and double mountain *Centaurea* (*C. montana*), *Periwinkles* in variety, *Ranunculus amplexicaulis*, *Solomon's Seal*, *Fumitories* (*Corydalis*), *Orchises*, various; *Scillas* in variety; *Violets*, various common kinds, besides *Viola gracilis* and *Snowflakes*; *Orobanchia aurantiaca*, and the single and double *O. vernus*. Among shrubs are the *Pontic Daphne*, *Rubus spectabilis*, excellent for naturalising. Among them also we notice plants of the type for which the wild garden is particularly fitted, i.e., species pretty when in flower, but coarse in aspect for long months afterwards in the border garden.

A plant catalogue.—May I say a word in favour of giving synonyms in the catalogue of names which you propose to publish? More disappointments, seem to be caused by the synonyms both in buying and exchanging plants than by any-

thing else. A list of synonyms after the names of those plants which have them would surely be of the greatest help in avoiding mistakes. A list of the best varieties would often be as useful as of species. I hope you may decide on including them, too, in the catalogue.—C. M. O.

FLOWER GARDEN.

SINGLE DAHLIAS.

EVERYONE must now have seen or heard more or less of single Dahlias, either at the various flower shows, or through the numerous articles and coloured drawings that have appeared in the various horticultural papers of the past season. Many pages have been filled with descriptions of this or that variety, and various have been the comments made upon them. Though many of the old Dahlia growers ridiculed them, they are now turning their attention to them. What a change! For years raisers strived to make them double and as large as possible; now they are going back to Nature's production, pure and simple; and who knows how many lovely forms have been cast away to give place to double flowers. So important have these single Dahlias become, that I see one nurseryman, Mr. Ware, of Tottenham, has devoted a catalogue expressly to them, and from this I have extracted the subjoined selection of varieties. Some of the old varieties of single Dahlias, such as *variabilis*, *gracilis*, *mexicana*, *coccinea*, &c., have been cultivated for many years, but it is only during the last two or three that any attempt to improve them has been made, and the result has been a number of beautiful varieties, which for years will be cultivated, and which will become far more popular than the double kinds. In colour, the most fastidious can be pleased, as they possess every shade of scarlet, crimson, purple, mauve, yellow, and white, and some have two colours, as, for example, the lovely *Paragon*. From the catalogue just alluded to I see there are several of this type, so that we may expect to get a race of these lovely edged flowers.

For decorative purposes single Dahlias are pre-eminently useful, their large, bold flowers standing up well above the foliage, defying both wind and rain far better than the double ones, as the rain cannot rest among the florets, and, being much lighter in structure, they bend to the wind, instead of breaking off, as is too often the case with the massive double varieties. As a rule, too, the single ones are more profuse blooming, flower earlier, and are appreciated by everyone for cutting purposes. There is another advantage belonging to the single varieties: that bane to flower picking, the earwig, finds no hiding-place among the petals; whereas double flowers often contain this objectionable pest. For cutting purposes late in the year, single Dahlias are the most valuable group of plants in cultivation; and the fact of the Covent Garden florists buying them by hundreds proves the value set upon them for that purpose.

In making a selection, I have been careful to avoid all those with incurved petals, as they are very inferior to the thick, flat, imbricated petalled kinds, such as *White Queen*. All the following were carefully noted when in bloom, and will be found the finest in cultivation:

Aurantiaca, bright orange, fine well-formed flowers; *Beauty of Cambridge*, bright fiery crimson, very large, flat and circular; *Cecile Tegner*, bright rosy pink, clear and distinct; *Darkness*, very deep, rich, bright mulberry; *Duke of Teck*, rich mauve, very dwarf; *Gracilis perfecta*, rich velvety crimson, good shaped flower, a first-class variety; *Harlequin*, deep rich rose, striped with purple through the centre of each petal; *Le Baron*, rich mulberry, shaded with crimson, with a dark centre, one of the finest; *Lovely*, bright crimson clouded with gold, a very novel and effective flower; *Lutea grandiflora*, rich golden yellow, fine form; *Mauve Queen*, this will be difficult to beat, being exquisite in form, and of a most lovely mauve colour; *Paragon*, rich velvety maroon, each petal edged with a broad band of rosy purple; *Paragon* (purple), a fac-simile of the above, but without the

central marking, a first class variety; Ruby, rich ruby red, flushed with crimson, a very telling variety; Scarlet Gem, bright scarlet, shading to orange, a bold and very conspicuous variety; Thalia, bright amaranth, fine, well formed flower; White Queen, the finest white Dahlia in existence—perfection, in fact, in every respect (an illustration of this variety appeared in THE GARDEN a short time ago); Yellow Queen, rich yellow, extra fine habit, very free flowering, an exact counterpart of White Queen, except in colour.

In addition to the above, a few species demand attention, which scarcely come into the category of florists' flowers, yet are very useful for decorative and other purposes. Glabrata, a pretty dwarf growing species, covered with myriads of small lilac blossoms with yellow centres, a gem for cutting. It is synonymous with D. Mercki and Decaisneana, both fine in their way, but more adapted for winter flowering than any previously mentioned; Juarez, the Cactus Dahlia, a curious double variety, resembling in flower *Cereus speciosissimus* with the brilliant colouring of a Poinsettia; there appeared to be several new varieties in this way; Viridifolia, the green flowered Dahlia; Zimapani, the Black Dahlia, flowered deep crimson, almost black. D. imperialis, arborea, and Maximiliana are best grown under protection; all the others require similar treatment to ordinary Dahlias, and as the time is approaching for planting them out, no time should be lost in securing them.

Stem bulbs in Tulips.—In taking up some Tulips I found two or three with stems on which small bulbs had formed in the axils of the leaves. As I have never noticed this before, I should be glad to know if it is of frequent occurrence. I have a bed of Turko-Persian Ranunculi which is looking very well. Will some of your readers tell me what is the proper treatment after flowering? Do they require to be harvested? or may they be left to take care of themselves?—C. B.

Ranunculus alpestris.—Walking through a town garden in York the other day I was delighted to meet with this high alpine plant growing and flowering really well, although the garden in question is almost entirely surrounded by houses and not far from the railway works. Having seen quantities of this pretty alpine Buttercup in its native habitats, it was truly gratifying to see such a fine tuft, putting forth its numerous slender stalks a little more than 2 in. high, surmounted by large solitary snow-white blossoms. It was growing in a mixture of peat and loam, amongst which was a considerable quantity of old mortar, &c., and there were also large lumps of magnesium limestone lying about. This, I believe, is the second year in which it has flowered in its present position, the owner, Mrs. Thorpe, having originally brought it herself from the Alps.—R. POTTER.

Trillium grandiflorum.—There is a suggestive note on this flower on page 286, from which it may be inferred that it likes a severe winter, and that it is one of many plants which have suffered from want of rest during last winter. I have grown it here in sheltered peat beds with success for four years. Last year some bunches of it were the pride of the garden; this year the same bunches have come up weak, in some instances without flowers, or the flowers hardly half the size of those of last year. I was wondering whether the tubers, which can only be divided by cutting with a knife, were suffering from exhaustion, and whether dividing and moving would give them new life, but I have planted imported tubers every autumn for three years and none are doing well this year. On the other hand, *Trillium sessile* and *T. atropurpureum*, which flower much earlier, have been finer than ever. It would be interesting to hear from the experience of others whether occasional division and transplanting are good for *T. grandiflorum*.—C. WOLLEY DOD, *Edge Hall, Malpas*.

Tritomas in spring.—The *Tritoma Uvaria* and its varieties are usually looked on as autumn-flowering plants; but this season, thanks to the mild, open weather, they have continued to grow

and flower more or less during the whole winter, and are now, with the return of bright sunshine, starting again into full flower. I find the variety called *T. Burchelli* to be the most constant bloomer, and superior to the pale-flowered variety that only flowers once in the season. I find *Tritoma* excellent subjects for the backgrounds of large borders where they are backed up by shrubs, the shelter of which is very beneficial to them and similar plants that need a little protection in very severe weather. The old foliage is also a great help, and if removed on the score of tidiness, the first severe frost will most likely kill or greatly injure the crowns; plenty of foliage, with the few dry leaves that drift about the plants, will prove an efficient protector against ordinary winters.—J. GROOM.

White Myosotis dissitiflora.—"J. S.W." (p. 284) inquires if this is a new plant. I should say, Yes, decidedly. I have grown the species for many years, and have never known it to vary from the type till this year, when a white seedling *dissitiflora* came up self-sown on a spot where the *dissitiflora* had grown last year, and which has also been shown at South Kensington. No doubt the blue is best by far; but a white would prove valuable in many places and by way of contrast. By the way, will the raiser of *Myosotis dissitiflora splendens* kindly say whether that variety is a seedling or a sport? There is no doubt of its being a larger and stronger growing variety than *dissitiflora*, and, being later, it is now in great beauty. The white variety and *splendens* are likely to be sought after, and so made valuable. Until this year I have never seen a white *dissitiflora*; nor have I seen a white *palustris*. *Myosotis sylvatica* is the most common white, and is the true *sylvatica* of a perfect white colour.—D. T. FISH.

Gentiana acaulis as an edging.—This lovely Gentian when seen in established lines or masses has few equals amongst blue-flowered plants. It appears to grow best in firm soil. We have it as broad bands inside the brick edgings of our kitchen garden, where the soil does not get disturbed at any time very close to the roots; when transplanted it does not take kindly to its new situation unless the soil is well consolidated about its roots. We usually tread it in if it gets loosened in any way by the action of frost. After it gets rooted it gives no further trouble, and yearly increases in floriferousness. Some lines of it that have been planted several years are now a complete mass of flowers, which when fully expanded in the sunshine, have a striking effect, unequalled by that of any of the tender exotic plants which we possess. I may here remark that common brick edgings associate well with this and many similar plants, such as *Saxifragas*, *Sedums*, &c.; and anyone wishing for a good substitute for Box or tile edgings should give ordinary bricks a trial. Lay them in so that one side slopes from the walk, and then plant anything desired just inside. Such edgings will last for many years, and give scarcely any trouble. When the plants are in bloom they have a cheerful effect, and when the old flower-stalks are cut off, they look neat and trim during the whole year. Many early spring flowers make excellent edgings. The *Alyssums*, *Aubrietias*, *Daisies*, and plants of similar habit may be utilised in this way, but anyone giving this *Gentiana* a trial for such a purpose will be sure to wish to increase the stock of it every year.—J. GROOM, *Zinton*.

SHORT NOTES—FLOWER.

Birds and Crocuses.—It may interest your readers to know that birds break down the yellow Crocuses to get the saffron that is contained in the flower, of which birds are especially fond.—K., *Staines*.

Cow Parsnip (*Heracleum giganteum*).—This plant is in no way injurious to animals; therefore "C.M." may safely employ it for ornament in covers. Planted near the margin in deep moist soil, and where it can enjoy light and air, its ample foliage and large umbelliferous heads of bloom certainly produce a striking effect.—J. KNIGHT, *Epson*.

NOTES OF THE WEEK.

SCILLA CAMPANULATA VARS.—Some of these come to us from Messrs. Osborn. They are well worth looking after for the spring garden and wild garden. They grow anywhere where the wild Hyacinth will grow, and are also good garden plants.

WHITE WISTARIA.—This is really a beautiful variety of the well-known blue *Wistaria*—the finest and most distinct of any we know of. The flowers are pure white, and produced, as in the original, in pendulous racemes, but longer. It is now beautifully in flower in Messrs. Veitch's nursery at Coombe Wood.

CHRYSANTHEMUM SEGETUM.—This yellow annual of the cornfields is used by Mr. Bolas, gardener at Hopton, Wirksworth, for the embellishment of the conservatory, and he says that its golden blossoms look very gay just now associated with *Azaleas* and other plants; he adds, too, that he has had it in bloom throughout the winter. The flowers sent are very fresh and bright.

NEW TROPEOLUMS.—Mr. A. Dean, of Bedford, sends us flowers of two of the finest varieties of climbing *Tropeolums* that we have yet seen. One called *Arthur Veitch* is an intense velvety maroon, the other named *Brilliant* well deserves its name, being more fiery than any *Tropeolum* with which we are acquainted. Nevertheless, Mr. Dean thinks that the colours will be deeper and brighter when produced in the open air.

IKIOLIRION TATARICUM.—One of the finest plants in flower in the open air at the Hale Farm Nursery, Tottenham, is this handsome bulbous plant, which has proved to be sufficiently hardy to withstand such a winter as the last. The rich violet-blue flowers produced on such slender graceful stems make it a valuable garden plant. The best position for it is in full exposure in light rich soil thoroughly drained.

A GREAT DESTRUCTION OF TREES, as will be seen by referring to another column, has taken place around London in consequence of the late storm. A sad sight is the death of the young shoots and leaves which the fine spring had induced to come out before their usual time. We fear fruit trees will suffer very much. The hills around Lancaster, Kendal, and the lake district are said to be heavily covered with snow.

DIANTHUS FISCHERI.—This is one of the most beautiful of the alpine Pinks, but one about which little appears to be known. We saw it the other day finely in flower in the Hale Farm Nursery, where on a raised mound it formed spreading cushion-like masses, each bearing deep rose-pink blossoms the size of a shilling above the short grassy foliage. It appears to be a more vigorous grower than either the *Glacier* or *Alpine Pink* (*D. glacialis* and *alpinus*) and if so will be welcome on many a rockery.

CYDONIA JAPONICA NIVALIS.—The ordinary white flowered Japan Quince is a beautiful plant, but for purity of colour it is eclipsed by this variety, which has flowers of snowy whiteness, a colour which does not change from the time the flowers expand till they decay. Hence it is useful for contrasting with the deep coloured Quinces, among which the finest we have seen is one called *princeps*, the colour of which is an intensely rich crimson. Both of these varieties are among others now in beautiful bloom in the Coombe Wood Nursery, Kingston Hill.

NARCISSUS BULBOCERNUM.—In order to obtain an adequate idea of the real beauty of this *Daffodil* it must be seen in such perfection as it is now in Mr. Ware's nursery at Tottenham,

where several square yards of it are covered with its golden Hoop Petticoat-like blossoms. In the rock garden there is a spreading mass of it on a sloping bank that is simply perfection, the foliage being so healthy, and the flowers nestling so profusely amongst it. The soil in this nursery is of a stiff loamy character, and evidently suits the plant admirably, though probably the mild winter and spring have conduced to make it so fine this season.

LEDUM PALUSTRE.—Just now this little marsh shrub is a mass of snowy blossoms, every tiny twig being terminated by a dense cluster of them. *L. latifolium* is similar, but less floriferous, and also rather larger in growth, and not nearly so compact, yet it, like *L. palustre*, is an admirable shrub for a rock garden where there is a peaty soil kept rather moist. In the Coombe Wood Nursery both of these shrubs are very charming now, and contrast beautifully with the deep pink cushions of *Daphne Cneorum*, which is also in fine condition.

EREMURUS OLGE.—A good deal has been written about this new Liliaceous plant, and no doubt botanically it is an interesting object, but from a garden point of view it is not worth growing—such at least is our opinion after seeing the plant now in flower at the Hale Farm Nursery, Tottenham. It has the appearance of the old *Asphodelus albus*, but is not so attractive. The leaves are long, narrow, and very glaucous, and the tall flower-spikes bear dull coloured flowers, whitish striped with brown.

GREVILLEA SULPHEUR.—This is probably the hardiest of the introduced Grevilleas, and is one that not only grows, but flowers profusely in the open garden. In the Coombe Wood Nursery, against one of the walls of the houses, there is a good sized bush of it literally covered with yellow blossoms of singular shape, but withal attractive. It has occupied its pleasant position for several years, and produces an annual crop of bloom. *G. rosmarinifolia* is another species that thrives under similar treatment.

CELSIA CRETICA.—This showy old-fashioned plant is too often relegated to the curious or botanical garden, notwithstanding the fact that it is one of the most useful plants we have for adorning a greenhouse or conservatory in early spring, or in fact during the greater part of the year. We met with it the other day at Gunnersbury House, where Mr. Hudson pays some little attention to it, though he intends to further test its capabilities as a decorative plant for the conservatory. Very few seem to know much about its culture, but it is high time that such a handsome subject should receive more attention than it hitherto has done.

OMPHALODES KRAMERI.—In this Japanese species we have a beautiful addition to hardy plants, and one which will doubtless take rank with the old but charming *O. verna* and the newer *O. Lucilæ*. It is larger in growth than either of these, the leaves being ample and the flowers, too, as large as a sixpenny-piece, and of a glowing rich blue. When exhibited last year by Messrs. Veitch it was doubtful if it would prove hardy, but the plants now in flower in the Coombe Wood Nursery are evidently quite at home in the open border. There is also, we believe, a pure white-flowered variety of it introduced.

ANTHERICUM LILIASTRUM.—It is not often that one sees the flowers of this beautiful mountain bulbous plant before midsummer; therefore it is well to know that it lends itself kindly to forcing gently into bloom early. In the large conservatory at the Pine-apple Nursery, Maida Vale, it is largely grown in pots for the purpose

of getting it into early bloom, and just now it is one of the most beautiful of the flowering plants in that establishment, the delicate white flowers on the tall slender spikes being very charming. It contrasts finely, too, with the yellow Day Lily (*Heimerocallis flava*), which likewise forces well.

DOUBLE PETUNIAS.—We have some of these from Mr. W. Hartland, Cork, which are certainly very rich—one might say splendid—in their respective colours and variations. The odour of these flowers, at least when handled, is not at all agreeable. We have no doubt if their leaves were a little larger some improvement on the virus of Tobacco could be extracted from them; nevertheless, they are bold in form, and so rich in colour that they will long remain popular. No idea of their colours can be given by description. "The true secret," Mr. Hartland says, "of having a good result from a packet of seed is to save all the weakly plants, and nurse them on by stages. They are always the doubles."

THE FIRE PINK (*Silene virginica*).—The flowers of this Catchfly are unsurpassed as regards brilliancy by those of any other plant, and on this account are extremely showy. In one of the cold houses at the Hale Farm Nursery, Tottenham, there is now a fine plant of it, on which a score or more of its showy blossoms are expanded. They measure some 2 in. across and open in succession for several weeks. The plant itself is perfectly hardy, and when grown in the open is much more compact than under glass, but it does not flower till nearly midsummer. Another showy *Silene* in flower at this nursery is *S. pennsylvanica*, a kind with large deep rose blossoms in the way of *S. Elizabethæ*. It likewise is quite hardy in the rock garden.

BLANDFORDIA FLAMMEA ELEGANS.—The Blandfordias are a beautiful class of perennial greenhouse plants, though by far too little known in a general way; indeed, it is only in botanical collections or the best nurseries that one meets with them. Yet they are without exception all showy in the fullest sense of the term, and they combine gracefulness of foliage and growth with attractive colours. One of the finest of the family is now in beautiful bloom in the Pine-apple Nursery, Maida Vale, where there may be found a full collection of the species belonging to this genus besides some handsome hybrids. The variety in flower is named *B. flammea elegans*. It bears its short flower-stems well above the grassy foliage, and they are terminated by dense umbels of pendent bell-shaped blossoms, which are some 2½ in. in length, rich canary yellow, margined round the mouth with a pale crimson tint—a striking combination. Other species will soon be in flower in this nursery.

THE ROCK GARDEN AT CHISWICK is just now as attractive as we have ever seen it, since it was made some two or three years ago. Its surface is aglow with broad spreading masses of alpine plants, among which Saxifrages, Arabises, Primulas, and Aubrietias are conspicuous. Among the latter one called *erubescens* is distinct from any of the others. It has delicate bluish pink blossoms, plentifully produced, and as large as those of the ordinary kind. Among Saxifrages *Wallacæ* is by far the finest; its pure white flowers are larger than those of any of the group in which it is placed, and are profusely borne in dense tufts. It is a plant that should adorn every rock garden in spring. *Gentiana verna* seems quite at home, and is flowering beautifully in a snug cranny of moist, deep, loamy soil, the brilliancy of its flowers contrasting strikingly with the prevailing white blossoms of the other plants. Springing out of a dense carpet of mossy

Saxifrage is a mass of a glowing crimson Tulip, the effect of which is charming indeed, and well deserving the attention of rock gardeners, the appearance of the Tulips being thereby much improved. Among other hardy plants in flower at this place are *Myosotis elegantissima*, a variegated-leaved *Forget-me-not*, very charming, and a first-rate rock garden plant; *Iberis Pruiti*, a dwarf Candytuft, about 4 in. high, with broad flat clusters of white blossoms produced in abundance; also *I. gibraltarica*, the species that is not so hardy as could be wished. The charming Scotch Primrose (*Primula farinosa*) is grown to perfection here, there being some scores of plants of it in bloom, and exceptionally fine. Some of the open borders are filled with a fine collection of seedling Polyanthus, amongst which there is a wonderful variety of both habit and colour, while of Auriculas there are the beautiful alpine and fancy kinds, particularly the laced edged section, all the varieties belonging to which have a charming appearance.

AZALEA PONTICA NARCISSEIFLORA.—Among the numerous varieties of the Pontic Azalea we have seen none so distinct as the one which has come into notice within the last year or two. It is aptly named *narcisseiflora*, for the blossoms are pure yellow and duplicated much in the same manner as the cup of the common double *Daffodil* (*Telemionius*). They are produced in loose clusters amidst the delicate green unfolding foliage, and the whole plant has a charming effect at this season of the year. It is now one of the most noteworthy plants in flower at Messrs. Veitch's tree nursery, at Coombe Wood, where it is grown largely in pots for decorative purposes.

CRASSULA JASMINEA.—It is a singular fact that some plants long introduced, but only known in botanic gardens, sometimes become suddenly popularised. Such is the case with this *Crassula*; till within the last year or so it was scarcely known to the general cultivator, but since it was exhibited so finely as it was at one of the shows at South Kensington, it bids fair to be a popular decorative plant for the greenhouse in spring. Its growth is dwarf and compact, the erect stems forming a dense mass. The flowers, which are white, are in size and shape like those of a *Bouvardia*, and have an agreeable perfume. In a cut state they last a long time in perfection. They are excellent for button-holes, or for any small bouquets. There are some excellent flowering plants of it in the Pine-apple Nursery, Maida Vale.

INDIAN AZALEAS OUT-OF-DOORS IN WALES.—At Glyn-y-garth, a beautifully kept residence on the banks of the Menai Straits, I was not a little surprised to see the Indian Azaleas—*optima* and *floribunda*—in perfect health and showing abundance of bloom in the open ground. Some half dozen *Camellias* were also planted out, which last season produced quantities of excellent well-formed flowers. Here is also the finest specimen of the Banksian Rose I have yet seen. It covers an almost perpendicular rock for nearly 30 ft. in height, and 18 ft. in width. When in full bloom during summer this is an object of general admiration, the clusters of small yellow Roses being produced in rich profusion. I may mention that the flower garden in which these are growing has a southern aspect, and is well sheltered from all other points. **EMERGEO.**

MAGNOLIA SOULANGEANA NIGRA.—This beautiful variety must be included among the most valuable additions that have been made of late years to the list of hardy flowering trees. It belongs to the early-flowering section, but though it has been named as a variety of *M. Soulangeana*, we are inclined to think it a

natural variety, seeing that it was introduced by the late Mr. John Gould Veitch direct from China, whereas M. Soulangiana is said to have been artificially produced. Nigra is one of the finest of all the coloured flowered kinds, the flowers being not only about twice as large as those of the others, but the colour of the greater portion of them is of a most intense purple-crimson; in fact, almost black. In the Coombe Wood Nursery there is a fine example of it in full flower against one of the walls, and in order to put its hardness to the test, Messrs. Veitch have had some plants placed in the most exposed parts of the nursery, and these have been uninjured during the past three or four winters. These plants in the open quarters, though perhaps not so fine as the one against the wall, are still very good, being covered with large and deeply coloured blossoms, which contrast strikingly with the more delicately coloured kinds, such as Norberti and Lenné, both of which are likewise in beautiful blossom at this nursery. Another early Magnolia in flower here is M. purpurea, but it is very inferior to either of the others just named.

CALCEOLARIA BLOOMS from Messrs. Cannell & Sons, Swanley, represent an uncommonly fine strain of this showy greenhouse flower, the blossoms all averaging from 1½ in. to 2 in. across the pouch, and they embrace a wide variation in respect to colour, some being of an intensely deep crimson and prettily marbled, while there is every gradation of shade to clear yellow and creamy white, most of the flowers being copiously speckled and blotched. These blooms, Messrs. Cannell assure us, were picked from plants averaging about 1 ft. in height, and they have one of their 100-ft. houses full of them, which must indeed be a fine sight.

FUCHSIAS IN DEVON.—I send you sprays of Fuchsias of various sorts, viz., Rose of Castile, Guiding Star, and Arabella Goddard, gathered among others from a south wall in the open air, where they have stood unprotected for eight or nine years. We have already cut pieces from them for table decoration, and shall continue to do so until late in the autumn. This being an exceptionally mild winter, they have sustained no injury but in severe winters they get killed to the ground. In future I hope to protect them with straw and mats, as they would well repay it by blooming so much earlier. They grow in a well prepared border of light rich soil, and were deeply planted close to the wall, so that even in severe winters frost does not reach the necks of the plants. In the same border we grow our early Lilies of the Valley.—**JOHN GARLAND, Killerton, Exeter.** [The sprays sent were beautifully in bloom, and looked in every way as if they had come from under glass.]

DARLINGTONIA CALIFORNICA.—A fine specimen of this singular Pitcher-leaved plant is now flowering at Kew. The flowers much resemble those of a Sarracenia, and are not very attractive. The leaves of this specimen are about 2 ft. high.

THE LATE GALE.

A VERY early spring is usually harmful to all our hardy trees and shrubs. We never saw, we think, greater destruction than is now visible in the hardy trees around London, and last Monday the leaves of the Limes, a hardy tree enough (one sees its lovely green high on the cliffs of some of the coldest mountains in Europe), seemed as if they had been scalded in boiling water. So of other hardy trees. The Chestnut avenue in the Regent's Park presents a most pitiful sight. The poor trees seem to be out of a latitude where they have any chance of developing either flower or leaf. Probably nowhere near London was such

destruction caused by Saturday's gale as in the magnificent avenue of Chestnut trees in Bushey Park, which the public are informed by the usual notices are "now in full bloom." From Teddington at one end to Hampton at the other the scene may be described as one of wreckage. Many large trees were uprooted, while some hundreds of others have suffered severely.

—The Commissioner of Works has been fully justified in felling some of the trees in Kensington Gardens, if we may judge by the numbers that were felled by the wind on Saturday last. Twigs and branches are strewn about in all directions, while at frequent intervals great trunks are lying on the ground torn up by the roots. The three great winds of the last nine months have dealt us as much destruction among trees, not only in Kensington Gardens, but throughout England, as nine years had done before.

—On Saturday, April 29, we were visited by one of the most destructive gales I ever remember at this time of the year; in fact, it was a repetition of the great gale of October last, except that it set in from a more southerly quarter and worked round to the west at sunset, when it blew with great force. Many large limbs of Cedars were blown off, while young tender shoots and cones lie thickly under the trees. Many large forest trees were blown down bodily or sadly broken, while those that weathered the gale present a battered appearance, the foliage being lacerated and blackened. Horse Chestnuts in full beauty are especially disfigured. In the flower garden spring flowers have been brought to an abrupt termination. Myosotis dissitiflora, a lovely carpet of soft blue, was, in exposed places, cleared of every bloom. It is, however, in fruit gardens where we find the greatest amount of mischief done. Pears, Cherries, Plums, &c., completely laden with tiny fruits, are blackened as if by fire; and although the little fruits from being firmly set held on bravely, I fear the check experienced by the trees through loss of foliage will cause most of the fruits to drop. Even Potatoes a few inches high were cut off by the wind. Our estimate as regards fruit crops may be said to have sunk 50 per cent. since Saturday morning.—**J. GROOM, Linton.**

—On Saturday last between 3 and 5 p.m. we were visited by one of those destructive gales, which happily are not of frequent occurrence in this country. Many large trees were uprooted and considerable damage was done to the branches of others, but probably the most damage done is amongst fruit trees. Many Apple orchards were in full blossom, and have suffered severely, the wind and rain beating about the bloom and seriously injuring it. In the kitchen garden early Peas and Potatoes were much damaged; indeed, all young and tender growths on all kinds of plants are more or less injured. As to Roses, owing to the season being early, they had commenced to grow very fast, and the result is the loss of many of the young shoots and ragged and battered foliage.—**J. C. C., Cothelstone.**

—The gale on Saturday was probably the worst we have had since October, 1878. Owing to the land being so wet, we have lost a great many trees, principally Elms, in the low grounds and in the hedgerows where they were more fully in leaf than the very large trees in the park, which fortunately withstood the gale, although some large branches of Cedars, Larch, and Aspen Poplars (the latter two being in full leaf) have been snapped off. In one case a large old Ash broke off at 8 ft. from the ground. In the very highest ground in the park some of the crow's nests and young were blown from the trees and scattered on the ground.—**JOHN GARLAND, Killerton, Exeter.**

—In the Thames valley the damage to fruit trees is deplorable, and in fact not yet recognisable to its full extent. Young fruit-bearing shoots of Apples, Pears, Cherries, and Plums lie in heaps on the ground. Horse Chestnuts, too, are a sad sight, their young flower-spikes and leaves being torn and battered till they are black and shrivelled.

Limes, also, the pale green foliage of which lately looked so pleasing, are now almost leafless. The damage to buildings, sheds, and temporary structures is likewise very considerable.—**THOS. CROBURN, Sunbury Park.**

—The district around Dorking suffered severely from the effects of the gale which swept across the country on Saturday last. Large trees might be counted by the score lying in all directions, many of them tearing up masses of earth along with them consisting of from ten to twenty cubic yards. All Saturday night and Sunday men were actively engaged in clearing the roads, vehicular traffic having been in some cases suspended. The Netley estate, I hear, suffered heavily, as many as twenty-seven large trees having been blown down by the side of a public road in a distance of half a mile. Strange to say, although the trees stood on both sides of the road and the wind blew across the road at nearly right angles, not one fell in the roadway. On the Wootton estate, amongst other trees blown down was a very fine Beech—the finest in the district. In some cases lawn trees are completely divested of foliage, and several weeks must elapse before the damage can be repaired. Plantations and woods present the appearance of having been exposed to a scathing fire, the Oak, Horse Chestnut, and Birch being greatly damaged; none, indeed, seem to have stood unharmed. Climbers and creepers on exposed walls have been whipped to fragments; many cannot possibly recover this season. In the herbaceous border, too, very much damage has been done. Tulips, Anemones, and similar flowers are broken off by the hundred, whilst very many plants present the appearance of Dahlias after a severe frost in autumn. In the kitchen and fruit gardens damage is apparent to a great extent. Peas have been destroyed; Cabbage and similar plants have been twisted off at the neck by the score; Apples, Cherries, and other fruit trees are damaged beyond recovery so far as a crop of fruit is concerned; Gooseberries and Currants are lying thickly on the ground. Altogether the damage done is incalculable.—**C. D.**

—The effects of Saturday's hurricane on the fruit crop in Mid-Kent are serious. Many Apple trees, especially the older ones, have been blown down. The tender young leaves of the Cherry and Apple trees, and especially upon the side exposed to the fury of the gale, have been so bruised that they have turned black, while the young fruit has also suffered in like manner. In many places the Gooseberry bushes have received much injury; leaves have been blown off, and many bruised and blackened, while the young Gooseberries have either disappeared, or have been so injured that they will shrivel up and fall off. Both Black and Red Currants are injured. It is indeed difficult to estimate the damage that has been done. One large grower puts his loss at present at £200, though it is possible that in a day or two it will be found to be much larger. An equally unsatisfactory report comes from East Kent.

Hail storm in Ireland.—While walking with some gardening friends through one of our best fruit gardens in this vicinity yesterday we were overtaken by a hailstorm of unusual violence; so large were the frozen hail-stones, that they perforated leaves and sent fruit and flowers flying in all directions. We examined the standards and cordons thus exposed, and came to the conclusion that the prospect of fruit has, from this cause alone, been seriously jeopardised. The hills around are white with snow; so the prospect of a smart frost any clear night is not encouraging for the prospects of the fruit or vegetable crops, not to mention the flower garden.—**W. J. M., Clonmel.**

Fungus (T. S. G. E.).—The two white fungi about the size of small hen's eggs, and to which you refer as puff-balls, and possibly truffles, are the egg condition of a most offensive, highly fetid fungus. If you look for it, no doubt you will find it in its perfect state, with a tall white stem. The odour it gives out when mature is most disagreeable.

PUYA GIGAS AND ITS DISCOVERY.

On May 2, 1876, I left Pasto to cross the eastern Cordilleras and explore the Lake Cocha, a subalpine lake to the south of Columbia, whence rises the Rio Guamués, one of the principal tributaries of the Amazon. Of this expedition, I published a description in the *Tour du Monde* (Vol. xxxviii., p. 332). I will now therefore only give an account of one of the plant discoveries then made. We were proceeding on our way in file through water up to our knees, in

underneath, provided with formidable black spurs diversely hooked. From the centre of the leaves sprung the stem, varying from 20 ft. to 30 ft. in height; the colour a greyish black, covered with wool, which was most abundant near the top. This wool protects the flowers from the inclemency of a zone, the altitude of which is more than 3000 mètres (10,000 ft.) above sea level. The disposition of the flowers on the stalk gave it the appearance of an enormous club. I did not see the flowers, but I was assured

he had discovered in the department of Anacoch. This plant, which grew in the Quebrada de Cashapampa, and on the road from Huinac to Cajamarquilla, not far from the little town of Huaraz, had stems 33½ ft. in height (nine mètres), and its flowers, which were disposed in panicles, he reckoned at not less than 8000 on each stalk. He found it at an altitude of 3500 mètres above the sea level. M. Raimondi's plant is still unknown to botanists.

Puya gigas, which I have introduced into Europe, will be a grand plant for temperate houses and conservatories under our climate. Out-of-doors it would produce a fine effect on the shores of the Mediterranean, where we have every reason to hope we shall be able to cultivate it, from Toulon to Genoa. The position to which it is indigenous proves it to be a plant with a vigorous constitution, and encourages our hope of success. Everything tends to make us believe that it will thrive like the *Dasyliirions*, of which it has the habit, and which form such fine specimens in the south of France. It would give me great satisfaction to see, one day, on the slopes of the picturesque ravines of Cannes and Nice the prodigious stalks of this inhabitant of the colder regions of the most beautiful mountains in the world.

ED. ANDRÉ.



Puya gigas in its native site (sketched at Laguna Cocha, New Granada).

the midst of rushes, which form a vast marshy circle round the Cocha, and between the small hillocks, on which *Cassias*, *Osmunda cinnamomea*, and pretty rosy *Cardamines* grow, when I suddenly perceived rising up before me a kind of mast like a telegraph post set up in this singular landscape. Having approached it, I found it to be a gigantic Bromeliad, the strangest that any botanist had ever seen; on small hillocks, just out of the swampy ground, rise up, or rather spread out, rosettes of sharp-pointed hard leaves, of a green colour above and white and furry

by the natives they were very beautiful, being at first white, and then passing to rose and violet before fading away. I had already met in the Cordilleras many species of *Puya*, from the occurrence of *P. lanuginosa* (Schult.), with flowers of blue or verdigris, to *P. chilensis*, with yellow outside petals, but nothing of the kind had been so striking to my eye either for size, habit, or manner of flowering as this *Puya*.

Several months after this, when at Lima, M. Raimondi, the celebrated Peruvian traveller, spoke to me of another giant Bromeliad which

A CATALOGUE OF PLANTS.

WHAT is wanted in this way by the majority of amateur gardeners is, I should say, a simple list of hardy plants introduced and known to be in cultivation. Varieties of florists' flowers must of course be omitted, for the nurserymen's catalogues supply these already "to suit all tastes," but it might be well to admit certain flowers that have acquired a distinct character by hybridisation, such, for instance, as some of the Bellflowers or the leading varieties of the Iris germanica. Only the leading varieties of Saxifrages, Sedums, &c., should be given; those who are curious in such matters would, of course, be able to fill in their own lists in some such manner as suggested by Mr. N. Fraser, while the fact of their omission might serve as an intimation to common-place people that their interest is "merely botanical." I would suggest that if such a catalogue be printed, the plants should be arranged separately according to the Natural Orders, under which headings they would of course be placed alphabetically. A synopsis, so to speak, of the "possibilities" of each Order is the best way to enable one to judge of the weakness of one's own collection, or to discover what one might wish to grow. There are, I take it, few people who care enough for gardening to read such a catalogue who are not possessed of sufficient elementary botany to know their way about it. While on the subject of "lists," let me say that I am inclined to agree with Mr. Elwes that some of the readers of THE GARDEN (other than the very esoteric) may, perhaps, be getting tired of reading the names of other people's flowers. Most of us, here in England at any rate, are agreed that it has been and is an exceptionally fine spring, and if there is any question of the luxuriance and brilliance of spring flowers, *solvatur ambulando*. Comparatively few, however, can afford the money to buy all the new bulbs, and perhaps not very many more could afford the room to grow them in if they had them; consequently the value of these lists to ordinary people is greatly enhanced when the sender will, as Mr. Elwes has done, call attention to those that are especially excellent or worthless. I wish he had extended his criticisms to some more of the species, especially the Tulips and Fritillaries.

J. C. L.

Painting iron fences.—These are usually painted green, which is supposed to be the best colour from a landscape point of view, because least discernible, showing no boundary line to arrest the eye and limit the extent of the place;

on the contrary, the whole surroundings thus fenced as far as the eye can reach appear to be one undivided whole; but although green is the best colour to give that effect, it is about the least enduring; before the season is far gone it fades and looks as if it had never been put on for years. This year we have painted our fences white, and where too long a stretch is seen of them at a time the colour is certainly objectionable, but where the fence loses itself behind a tree or juts out and in among shrubs, or appears on the top of a hill and loses itself again in a hollow, to be seen hereafter in the distance, it is quite in harmony with the landscape, and the effect in contrast with the tender leafage at the present time is very cheerful. Straight fences should never be painted white; they are often very objectionable in themselves, and to paint them white only aggravates the evil. Before using this colour on any fences they should all be gone over and put into thorough repair; curves should be well defined, as the white makes any little defect in that or other ways very easily seen.—A. MACKIE, *Woodlands, Darlington.*

ROSE GARDEN.

NIPHETOS OR MARECHAL NIEL.

WHICH of these two Roses is the better? Why enquire? cries one; there can be no manner of doubt about it. The *Marechal*, as *Marechal Niel* is called by way of pre-eminence, is, without doubt, the finest Rose in existence. In size, form, colour, and sweetness it is the one Rose beyond compare—a full head and shoulders beyond all others. But stop, my dear Rosarian; that is the very point in dispute. Another is equally positive that no golden Rose, however perfect, can compare with a white one. A white Rose can be worn always, at any time, and under any circumstances, and anyhow, anywhere. It is exquisite in the hair or dress, and is just the thing for bouquet, wreath, or vase; while gold can neither be worn by bride nor mourner, and is not to be compared with white for church decoration nor affection's tribute on the graves of loved ones. But these are the decisions of taste, preference, or circumstance. They must be confirmed by the monetary estimate of shops and markets. These two Roses come into sharp competition with each other in both, and the result is decidedly favourable to *Niphetos*. Assuming that the samples of both Roses are of equal quality, the white as a rule commands the higher price, and so far is thus said to be the better Rose.

Possibly, too, the market standard is right. In scent *Niphetos* hardly equals the *Marechal*, but in all other respects it is its equal or superior. The form of a perfect *Niphetos* is all that can be desired. Its substance also makes it one of the most durable of Roses. Its odour is different and less full than that of the *Marechal* and many other Roses. But the purity of its white, the perfection of its foliage, its excellent habit, and strong flower-stems are strong recommendations in its favour. The weakness of the neck and stem of the *Marechal* is a great drawback to it in many ways. True, it may be strengthened, but a Rose that needs a wooden or wire prop to support it can hardly be pronounced perfect. *Niphetos*, too, being a true Tree, is a perpetual bloomer. It may, therefore, be had in flower at almost any season, and is thus an all-the-year-round Rose. The *Marechal* flowers indoors but once, as a rule, though, singularly enough, it may be made to flower in the open air twice with tolerable certainty. But when all is said for or against each of these two splendid Roses, the general verdict will probably be that either is best, according to taste and the purposes they are wanted for, and that they are amongst the finest and most indispensable Roses in cultivation. Judging generally by provision made for the culture of the two Roses, it must be admitted that the *Marechal* has more houses devoted to it than *Niphetos*, but that arises probably from the older Rose being really the least

known, as well as from the fact that, like its golden rival, it needs a rafter, wall, or house to reveal or unfold the rich fullness of its purity and beauty, and its useful power of continuous blooming. D. T. FISH.

THE AMERICAN ROSE-GROWING CRAZE.

By PETER HENDERSON.

DWELLERS in remote rural districts are unconsciously of the extent to which the culture of Roses is extending in and around our large cities. In consequence of the extraordinary prices obtained for Rosebuds during the past two or three years, not only have the regular florists used their large profits in extending their greenhouse structures for that purpose, but the fabulous reports of the profits of Rose-growing have excited the cupidity of many capitalists in the vicinity of New York, Boston, and Chicago, and in all probability in the other large cities of the Union. These men have an abundance of means, and begin on a scale usually at which the ordinary florist, who had to climb his way up, ends; so that we have already in the vicinity of New York at least a dozen establishments for the forcing of Rosebuds in winter owned by men who count their capital by millions. These gentlemen, of course, know nothing practically about the business, relying altogether upon their gardeners for success, for who ever heard of a millionaire florist? Whether they do succeed or not in making a profit of a few hundred pounds a year is not vital to men who count their income by tens of thousands, yet it is curious with what interest the rise and fall of a few pence in the Rose market is regarded even by them. New Jersey has more than her quota of these millionaire florists. Already we have four in Madison, one in Summit, and two in Orange, New Jersey, and it is said that there is as much interest manifested by them in the prices at which, in the technical slang of the flower shops, "Cooks," "Jacks," "Mermets," and "Perles" are quoted in Broadway as is evinced in Wall Street in "Wabash," "Lake Shore," "Erie," or "Central." It is true that one at least of these gentlemen give all the profits that accrue from his Roses to charitable purposes; but it is feared that he has few imitators among his compeers in this particular; for the motive is the same as in all other investments—to get the largest profit possible from the smallest amount of money involved.

A wholesale dry goods merchant, or a manufacturer, doing a business of £200,000 a year is amply paid by a net profit of 5 per cent.; but when he is given to understand that some illiterate digger of the soil, by an investment in Rose-growing of £2000, gets a net profit of 25 per cent., he foolishly imagines that a larger amount of capital invested will bring corresponding profits. Such, at least, seems to be the opinion of many capitalists, for within the past twelve months I have been consulted by at least a score of gentlemen about to embark in the business of Rose-growing, and I have no doubt others in the trade have had the same experience. Only last week a gentleman entered into negotiations with a greenhouse builder in Jersey City to construct at his country residence, some sixty miles from New York, 600 ft. by 20 ft., or nearly 15,000 square feet of glass as a beginning, which, furnished, heated by hot water and stocked, will cost not much less than £3000. It is true that many of these amateur florists will get their fingers burnt, and will not only never realise a dollar on their investments, but will work at a loss; yet enough of them will succeed to give zest to the risk, for at present prices, when success is attained, the profits are so great as to produce the present craze on the subject—a craze that probably will result exactly as the *Morus multicaulis* did in 1840, or the Grape Vine fever in 1865. We all know the disastrous results of these speculations. Hundreds thought there were "millions" in them, but found, to their sorrow, that they were thousands out. So, we predict, will be the result of the Rose mania, for an over supply may quickly change the fashion. All experience shows that,

in the perishable commodities of fruits, flowers, or vegetables, whenever an over-supply floods the market and brings down the prices below a paying level, less is sold than when they bring fair prices. Two years ago, in June, Strawberries and Cabbage in the New York markets got so low as not to pay even the cost of marketing. The result was that hundreds of loads had to be taken back to the manure yards, as they could not be disposed of at any price. Some thirty years ago Peaches one day fell down to 6d. a basket in Washington Market, New York, and would not sell at that. In those days the crop was perhaps held by a score of dealers only. They got their heads together and decided to destroy every Peach in the market. It was done. A scarcity was produced, and in twenty-four hours Peaches went up to 4s. per basket. The leader in the movement had no doubt been a disciple of Adam Smith, and had wisely studied the laws of supply and demand.

The present excitement in Rose growing is no doubt largely due to the unprecedented prices realised this winter, caused in a great measure by the unusual heat and drought of last autumn, which weakened in many cases, and in others entirely destroyed, the plants that would have been used to produce the crop of flowers. This, together with a brisk demand, has resulted in profits which it is unreasonable to expect can ever be long continued in any legitimate business.—*Gardener's Monthly.*

Rose growing in vineries.—We grow many different kinds of Roses here, both indoors and out, but none are so worthy of note as a fine specimen of *Marechal Niel*, which covers one end of a vinery and part of the back wall. It is growing in a raised border, where it has ample space for its roots, and where the hot-water pipes do not interfere with them as they run along the front of the vinery. This Rose is quite a sight just now; its beautiful bronze foliage is changing to pale green, and it is thickly clustered with rich, golden blooms. We first commenced to cut them in March; the flower-buds then numbered 375. We expect it will continue blooming for at least two months yet. The soil for *Marechal Niel* cannot be too rich; a mixture of good turfy loam and well decomposed manure in equal portions suits it best. Before pruning it should be allowed to run over the space intended for it to fill. If the blooms are required in March and April, it should be pruned at the end of December. It should be syringed well on bright days, and if mildew makes its appearance the foliage should be dusted with flowers of sulphur. When the flower-buds have formed, feed plentifully with liquid manure. Roses succeed best in late vineries where the temperature ranges from 50° to 55° at night.—S. BRIEN, *Giltown, Newbridge.*

Early Rose blooms and cuttings.—I gathered my first outdoor Rose on April 20, a *Perle de Lyon*, not a real beauty like my first from the same tree in 1881, for it had been slightly touched by those ubiquitous pests, the brown and green aphids. The former has been unusually troublesome, attacking indiscriminately both vigorous and weak shoots. That little toiler, the ant, has kept them frequent company, and I have noticed that the two are generally found together in rosaries. My cuttings that I planted in October I am happy to say are doing tolerably well; those which have been most successful are *Thérèse Levet*, Duke of Connaught (every one taken), *Gloire de Dijon*, *Souvenir de la Malmaison*, *Marie Finger*, *Perle de Lyon* (worthless, I read, on its own roots), *Celine Forestier*, *Madame Nachury*, *Pierre Notting*, *Fisher Holmes*, &c. I suppose, though, I may yet meet with further disappointment in this part of my rosarium; so wait with anxiety the proverbial 25th of May. A few words about my stocks for this year's budding. I keep my small establishment supplied with young trees by planting and budding on English Briers every season, as well as own-root Roses. They are very forward now, some of the shoots being already more than 1 in. in circumference, that I

believe I shall be able to commence budding the second week in May.—H. J. G., *Leves*.

TREES AND SHRUBS.

EARLY FLOWERING MAGNOLIAS.

THE Yulan (*Magnolia conspicua*) forms a conspicuous object amongst spring flowering trees, especially when viewed against a background of evergreens, which as the blossoms are produced before the leaves serve to show them off to advantage. The only drawback is the havoc made by spring frosts, which sometimes destroy the whole of the flowers in a single night. Notwithstanding this, however, this *Magnolia* is well worth attention. It forms a fine conical shaped tree, grows freely, and in mild springs remains for a long time in beauty. Though introduced nearly a century ago, it seems to have been planted but sparingly, but, judging by the numbers of it which one now sees in nurseries, a



Flower of *Magnolia conspicua*.

greater demand appears to be anticipated. Of quite a different habit is the purple *Magnolia* (*M. purpurea*), which assumes the shape of a loose, spreading shrub, 6 ft. or 8 ft. high; its stems are generally somewhat crowded, but not much branched, and as they acquire solidity press outwards, so as to attain at times a semi-procumbent position. The flowers are not so globular as those of *M. conspicua*, and seldom open fully until a day or two before they fall off. In colour they are deep purple outside and white within, and they open about a month later than those of the Yulan. *M. purpurea* is a native of Japan; several varieties of it are met with in different lists, but as they resemble each other very closely, for all practical purposes they are the same. Between *M. conspicua* and the Yulan several hybrids have been raised, the best of which is *Soulangeana*, for although it was an accidental seedling from *M. conspicua*, there is no doubt that the latter was crossed with *M. purpurea*, a plant of which stood close to it. *Soulangeana* is in all respects intermediate between its two parents. It forms a somewhat spreading tree, the flowers of which are tinged with purple outside, and about a fortnight later than those of the Yulan; thus it often escapes frost, and thereby prolongs the flowering season till *M. purpurea* opens its blossoms. *M. Soulangeana nigra* has flowers much deeper in colour than those of the common form, being deep purple on the outside, and *Norbertaina* is about intermediate between the two. *Magnolia Lenné* is of Italian origin, and resulted from crossing the two species, from which *M. Soulangeana* was derived. Like that kind, the flowers are intermediate in colour, but very large, globular, and freely produced even on small plants. Its rate of growth is rather slower than that of the last named

kind, and it is also at times injured during severe winters. *M. stellata* or *Halleana* is very beautiful, and so distinct from any of the above, as to suggest a good field for the hybridist in regard to the production of new forms. It is quite a small growing kind, bearing pure white, highly fragrant flowers composed of a number of strap-shaped petals, which relax after opening. Although quite hardy, it is well adapted for pot culture, and flowers freely under that kind of treatment. This *Magnolia* was introduced from Japan by way of America, under the name of *M. Halleana*, and was figured in Vol. XIII. of THE GARDEN.

ALPHA.

Berberis chinensis.—Without in any way being so showy as *Darwin* or *stenophylla*, this species is really very handsome, and so distinct that when better known it will doubtless become a favourite. It belongs to the deciduous section, but is one of the first of our shrubs to burst into leaf; it is at present, therefore, clothed with foliage and also in full flower. The shape of the plant is that of a compact twiggy bush, from the undersides of the arching shoots of which the flowers hang in great profusion. They are of a greenish sulphur tint inside, and brownish crimson outside. The foliage is small, almost round, and bright green, dying off scarlet in autumn. It is quite as often met with under the name of *B. Thunbergii* as *B. chinensis*. A fine mass of it is now in flower in the dell near the flagstaff at Kew.—H. P.

Pyrus Malus floribunda.—Amongst shrubs now in flower none are more showy and beautiful than this, its branches being clothed their entire length with rosy pink blossoms. As a lawn plant nothing can be more graceful or beautiful; the shoots being naturally pendulous, it forms a good standard, and for shrubberies it is equally valuable in the bush form. I have not yet tried it in pots, but have no doubt it would flower well, and if so would be very ornamental in any greenhouse. The way to propagate it is to put in cuttings made of the ripened shoots. This should be done in autumn in the same manner as Gooseberries and Currants are managed, and they will be found to strike almost as freely.—S. D.

Genista præcox.—I can give an account of the *Genista*, but without answering for its correctness. It must be more than a dozen years ago since I first saw it at Mr. Wheeler's, of Warrington, and I have always understood that it originated there as an accidental variety. It is a most beautiful shrub and perfectly hardy, but certainly should not be grown against a wall, as its natural habit is a round low bush. I send you flowers of another beautiful spring shrub, the *Solanum crispum*. The flowers are exactly like those of a Potato, but when a large bush is covered with them, the effect is very pretty. It is perfectly hardy.—H. N. ELLACOMBE, *Bitton Vicarage*.

Some years ago I obtained a plant similar to the one you describe from Messrs. Saunders and Sons, Cork. The name given to it by them was *Sparto-Cytisus albus aureus*. It is now in great beauty.—J. H. W. T., *Belmont, Carlrow*.

The *Genista præcox* mentioned (p. 233) as growing on the rocky garden at Cliswick I see in Messrs. Backhouse's catalogue. I presume it is the same as we have under the name of *sulphurea*, received from Mr. Ware two or three years ago. We find it not only beautiful in the rock garden, but very useful as a pot plant for flowering early in the greenhouse.—J. G. N.

Clipping hedges.—The only way to keep hedges of any kind thick is frequent clipping. We usually clip our hedges of Yew, Privet, Thorn, or Laurel about the first week in May, again in July, and again in September; therefore there is little to cut at any one time. In the case of deciduous plants, such as Privet, if the shoots are allowed to get long the lower leaves drop off, and when cut the hedge has a bare, stubby appearance; whereas if clipped while the shoots are soft, short, and green, the leaves are retained so long, that

such hedges become nearly evergreen. Other excellent plants for hedges are the Hornbeam and common Beech. These, if kept clipped close in, become very thick and stubby, and the leaves, instead of dropping, dry on the shoots, and do not drop until the rising sap in spring loosens their hold. Keep the base clear of weeds by frequent hoeing, and the top dense by frequent clipping, and such hedges will prove both ornamental and useful. In the case of Hollies, and in fact, that of all evergreens adapted for hedges, May is perhaps the best month in the year for planting them.—J. G., *Linton*.

NOTES AND READINGS.

COLOURS OF SPRING FLOWERS.—What a rich kaleidoscopic appearance these present at this season! Given only enough of each variety or species, and they will excel, or at least equal, the very best display that can be produced by summer bedders of the flower garden. We have the purest of whites in such subjects as the *Arabis* and perennial *Candytufts*, which last in perfection for weeks; bright blues, deep blues, and purples in the *Scillas*, *Grape Hyacinths*, and *Myosotis*, &c., and these and many more colours in the *Crocus*; crimsons, purples, golden yellows, vermilions, whites, and bizzarres in the *Tulips*; pale yellows and whites in the *Daffodils*; reds, blues, and pinks, &c., in the *Hyacinth*; crimson, yellow, and maroon in the *Wallflower*; numerous unique shades in the fragrant *Auriculas*; rich purples, yellows, and whites, and intermediates in the *Pansy* and *Viola*; yellows, whites, rose, crimsons, and many more in the *Primrose* and *Polyanthus*; red and white *Daisies*, blue *Hepaticas*, and *Anemones*, and *Aubrietias*; pretty *Phloxes*, *Saxifrages*, *Stocks*, and *Pyrethrums* and others. All these, with a few exceptions, are in flower with us at the present time under different aspects. One begins to see possibilities in the way of flower gardening by the liberal use of hardy plants, such as were not even dreamt of by the masters of the bedding-out art a few years ago, and all of which may be accomplished in a comparatively easy manner by gardeners of all degrees. The main thing is to propagate and to plant. One cannot help lamenting now the years that have been lost not only in neglecting to plant, but in many cases in actually robbing our gardens of the very flowers that ought to grow in them and which we all want so much now. The frequent complaint of the want of flowers in the garden in spring and before the summer bedders appear has no force, for now that the notion is got quit of that a spring garden must also be a formal one, like the summer parterre, there is no excuse for the absence of multitudes of the brightest and best gems of the garden, the majority of which will grow permanently on the lawn and in the shrubberies and borders with little or no artificial culture; only let them be planted where they can hold their heads up to the sun and leave the rest to Nature.

ST. MICHAEL'S PINES.—The prices of these certainly make it extremely difficult for all but the most successful home growers to compete against them, but we must say if "beautiful fruit weighing from 6 lb. to 8 lb." home grown "do not realise as many shillings"—say perhaps 9d. per lb., as stated in THE GARDEN last week—things are worse than I imagined. I have heard of St. Michael's Pines selling cheap at the ship's side occasionally, but nothing like this, although I believe they grow both cheaper and more plentiful. Eight shillings or less for an 8 lb. beautiful home-grown Pine-apple will not pay, but we never knew a fruiterer either

in Covent Garden or out of it offer so little and we have had to do with the trade. Of course the St. Michael's season is the worst for home-grown fruit, which must be sent to the market at the right season; but there are many things which are far surer and better than Pine culture now. How good these St. Michael's Smooth Cayennes are! In every way equal to the best home-grown ones, from which they cannot be distinguished. They are now imported in a riper condition than formally.

VENTILATION.—For all ordinary purposes the common system of ventilation is good enough, but for tender subjects like Orchids and others for which a volume of fresh air is necessary summer and winter, the plan now coming into general use for ventilating schools, public buildings, and private mansions is by far the best. This is Tobin's system, an extremely simple one, by which the air is brought into the building from the floor level by a pipe, which delivers it above the heads of the inmates, whether the building be high or low. Neither side nor top ventilation is needed. In a span-roofed plant house the air, by an elbow-shaped tube or line of pipes, can by this system be brought into the house from the floor line and delivered under the apex of the roof or anywhere else, from which point it spreads and mingles with the lower air in a manner so gradual that the most sensitive person cannot feel a current or draught, and except in extremely hot weather, when ordinary ventilation would be quite safe, there is no occasion to open either side or top shutters; the Tobin current will continue to flow in, and the air will escape in its own fashion by the chinks and crannies of the roof. The most eminent London architects are adopting this plan now in private houses, either in the windowsills or in the windows themselves, which, when consisting of a top and bottom sash, can be transformed into a Tobin ventilator any time by simply pushing up the bottom frame and fitting a board, provided for the purpose, into the bottom vacancy, thus causing the air to rush upwards between the two sashes at the middle. Upright sashes in conservatories may be made to ventilate the house in the same way.

APPLICATION OF MANURES.—Among gardeners and farmers there is a growing realisation of the fact that in the application of artificial manure especially, a more intelligent and practical system must be followed. The waste attending the indiscriminate method of giving the same kinds of manure to all sorts of crops is beginning to be understood, to some extent at least, and to those who are working so earnestly to this end all credit is due, if they are a little

over-zealous at times. Where ordinary farmyard manure from all sources is used, it is perhaps not of so much consequence under a judicious system of rotation of crops, but it will not do in the case of expensive artificial manures, which are becoming more extensively used every day, and when even our large corporations are turning their attention to their manufacture and sale on an extensive scale. Until we realise fairly that plants, like animals, need different kinds of foods, or at least different proportions of the same food, we shall not be able to feed them properly or economically. Both plants and soils vary in their wants in this respect, and it is really an analytical knowledge of both that is required by the gardener and farmer more than anything else. It is not prepared manures that the cultivator wants so much as a recipe for their preparation, in order that he may be able to

GARDEN FLORA.

PLATE CCCXXXV.—DOUBLE CINERARIAS.

The double Cineraria is comparatively a recent addition to greenhouse plants; it is only a year or so ago since the first variety, Mrs. Thomas Lloyd, raised by Mr. Greenfield, of The Priory, Warwick, was exhibited at South Kensington. Since then numerous varieties have been raised, and now we have as many colours amongst double as amongst single Cinerarias. There are various opinions about double-flowered Cinerarias; some think them less beautiful than the single kinds, while others consider them a valuable acquisition, and peculiarly well adapted for button-hole and other small bouquets, as they last in a fresh condition for a great length of time. On the plant, too, they last much longer than single flowers; for instance, while the single kinds are nearly past, double sorts are still in perfection. When well grown they are doubtless valuable plants, but if indifferently managed the flowers do not close fully up in the centre as they should do; it is indeed a singular fact that the flowers when first expanded have open black centres, the florets growing and closing up the eye afterwards. The flowers from which the annexed plate was prepared were selected last year from plants in the Swanley Nursery, where there is an exceptionally fine collection of them, and Mr. Cannell has kindly favoured us with the following notes in reference to their



Double Cineraria, showing habit of growth.

make them himself to suit his purpose, if such a thing be practicable, which may perhaps be doubted. At present there is nothing connected with gardening concerning which the gardener is so much in the dark, for in the application of many manures he really does in many cases not know whether he is doing right or wrong. A handy book on this subject would be of much value. The wants of cultivators are not so varied or complicated that they might not be provided for that way. It seems too much to expect either the gardener or farmer to become a walking cyclopaedia of chemistry, geology, and physiology, with the object of cultivating a few rods or a few acres of land, and still fewer crops; it is not worth his while. "Johnstone's Agricultural Chemistry and Geology" is good in its way, but not popular; probably not one farmer or gardener in a thousand ever heard of it.

PERRIGINE.

CULTURE.—"Although," he says, "they can easily be raised from seed, like the single varieties, yet it is decidedly better to propagate the best named kinds from side shoots, which strike freely in a shady situation, for they have from seed a greater tendency to degenerate than even the single kinds. The main point is, the moment they have done flowering to fumigate thoroughly and to afterwards place them out-of-doors in a situation where the sun never shines upon them. Thus treated, they will break up from the old roots with clean, healthy foliage, and may in this way be easily increased from year to year. When well grown and in full blossom mixed with other plants they form quite a striking feature, differing as they do from all other plants with which they are usually associated."

"The best sorts are Ada, very deep blue, flowers fine and double; Kate, beautiful pure white tinted with delicate lilac-pink, flowers very double and of good form; Phebe, pure white, mottled deep pink, large and double, dwarf and effective; Mary, light magenta-rose, flowers medium size, exceedingly floriferous and showy; Sophia, deep magenta, flowers fine and double,



A GROUP OF FINE CHRYSAEUMS

very free; Lizzie, pure white, margined with deep lilac; Mr. Thos. Lloyd, very deep purplish blue, tipped with bluish lake, flowers large in size, one of the finest; Mr. Sims Reeves, bright magenta-crimson, flowers large and very double."

KITCHEN GARDEN.

CUCUMBER GROWING BY EXPRESS.

"PEREGRINE" (p. 248) is certainly on the wrong track as regards this matter. He need have no fear of the Cucumbers breaking down under express culture, or of the plants appearing before the scientific committee as the result of growing them in a semi-saturated atmosphere and a high temperature. I may add that it was the Cucumber disease and my inability to cure it with the help of all the scientific and practical advice that the press and practicals could afford that converted me to the express mode of growing Cucumbers. With the aid of twenty or more degrees of heat than that commonly applied to Cucumbers we outgrew the disease and have kept it out ever since. The Cucumbers were also produced so much more rapidly and of better quality, that we have adhered to the system for some years past with the happiest results. But there is now nothing novel in the system, as it has spread and is spreading rapidly; in fact, it hardly differs from the old-fashioned high-pressure system of growing Cucumbers in manure pits. These were hot and moist within, and kept warm without by aid of manure linings made and weekly renewed with reeking hot manure. The surface of the glass was covered with several mats, and worked in between was a layer of dry hay or straw. These coverings were removed tentatively a few inches at a time, and the glass was so hot at times that one could scarcely bear the hand upon it, the thermometer indicating from 80° to 90°. Under such forcing by express treatment I remember certain infant Cucumbers wanted for an early show making 1½ in. of growth in twenty-four hours. I question if this has yet been beaten. Nor was the art of early closing to catch a pit, frame, or houseful of sunbeams unknown to experts in express culture thirty years ago. These very pits in which the infants that reached the goodly length of 27 in. grew were shut up in what I fear "Peregrine" would call a scalding atmosphere, that nearly, if not quite, touched three figures at times, and just as the sun-heat ran up the temperature to its highest, the all but impervious and impenetrable night coverings were clapped on, and the plants neither lost health, strength, nor fertility under this forcing treatment. In fact, express culture is quite natural to Cucumbers and such plants. Their constitution and habits are truly tropical, and the more degrees of heat within the limits of those indicated in the article animadverted upon by "Peregrine," the more vigorous the plants and the more fruitful. Such, at least, is my experience, and I am no novice in what has happily been termed express culture. Even were its effects as disastrous to the plants as "Peregrine" assumes, it will still be the best course to pursue in regard to such plants as Cucumbers. The seeds of these are of little value; cuttings cost even less; and good plants may be had *ad libitum* from the latter for the mere trouble of insertion, but the produce is valuable; and as without doubt double, treble many times the produce may be cut from a given area in something like a tithe of the time by express methods than by cooler systems of cultivation, the former would prove far the most satisfactory, even did it hasten the plants before the scientific committee or to the rubbish heap. The plants can be easily replaced. But while asserting this I by no means admit that the growing of Cucumbers in high temperatures and semi-saturated atmospheres—in other words, forcing the plants to do their best in the least time—either weakens Cucumber plants, induces disease, or shortens their lives. The testimony of universal experience would also be that the

quicker Cucumbers are grown the better their quality.

D. T. FISH.

American Wonder Pea.—This is a valuable variety either forced or out-of-doors. It is earlier and more prolific than any kind with which I am acquainted. I have at the present time fifty pots of it literally covered with pods in different stages, and I hope to commence my first gathering in the course of a few days. They were sown on February 8, and were under cool treatment until they had fairly started; then they were subjected to gentle forcing, and the result is most satisfactory. When better known this variety cannot fail to be a favourite.—J. CLARKE, *Brynkinl.*

Brussels Sprouts.—This invaluable winter vegetable can hardly be grown too strongly, or too well; no matter how long the stalks may be, they are (if of a good strain) sure to be covered with firm little sprouts. For the early winter supply we usually sow a pinch of seed between rows of Potatoes under glass in January, prick the young plants out under temporary glass coverings in February, and plant in the open air in April on deeply cultivated land in rows 3 ft. apart and 2 ft. asunder in the row. We keep the soil stirred, and have stalks yielding an unlimited supply in October. We rely on English saved seed, and find the produce quite equal to the finest imported strains with which we have yet met.—JAMES GROOM, *Linton.*

Mulching newly planted Asparagus beds.—I have for many years mulched newly planted Asparagus beds, and I am satisfied that the plan is a good one. Towards the end of May when the plants have started well into growth and the ground dry, I tread all the surface over with the feet between the plants, and after the first storm of rain in June I apply the mulching. If I have some half-rotten manure to spare I use that in preference to anything else, laying it on between the plants about 2 in. thick. If I have no manure I use short grass from the lawn, scattering it over the surface rather thickly. As soon as the first lot gets at all withered up by the sun another lot is put on. This treatment is continued until the end of July when the plants will have got sufficient hold of the soil to take care of themselves.—J. C. C.

Pettigrew's Cardiff Castle Cucumber.—This, I feel sure, would be grown by many could they see it as we have had it here. The seed was sown on the 26th of December; we cut the first Cucumber in the end of March, and since then the three plants we have confined to one side of a small span-roofed house have been loaded with Cucumbers excellent in flavour and about 15 in. long. They come two and three at each joint, but they should be reduced to one. From the plants just named we have out eighty Cucumbers, and there still remain fifty more of different sizes. The plants are well supplied with rich material at the roots, which enables them to finish off heavy crops without showing any signs of exhaustion.—A. M., *Inverkeithing, Dorset.*

Johnston's St. Martin's Rhubarb.—This is now excellent in open-air beds, and it is also one of the best of sorts for forcing, as it produces large numbers of medium-sized stalks, which, whether forced or in the open air, are always crisp and succulent. We have had this variety in excellent condition both earlier and later than most others. The large kinds so popular for market are hard and stringy comparatively early in the season, whilst this sort keeps sending up fresh stalks as tender as those of the first crop. Rhubarb is of such easy culture, that it frequently gets neglected. In order to yield a continuous supply of tender shoots, it must have an unlimited supply of rich soluble food within reach of its large fleshy roots. We give it annually a heavy dressing of rich cow-yard manure, and liquid manure as often as it can be spared. I find that a few crowns liberally treated are more satisfactory than double the quantity half starved. The more rapid the

growth, the better the Rhubarb will be. When plants with strong crowns for early forcing are required, they should not be gathered from late the preceding season; on the contrary, they should be allowed to perfect their foliage, and go to rest as early as possible, in order that the crowns may be fully developed and ready to start immediately heat is applied to them. We lift the crowns with large balls of earth attached to them, plant them in warm, dark houses or sheds, and when done with they are planted out until required again.—J. GROOM.

Making Mushroom beds.—Allow me to tell "W. T. G." (p. 266) that I have made these in different ways and in various places, oftener in outsheds or outhouses than in a properly constructed Mushroom house, and have always succeeded. We beat a bed down on March 15 without inserting any spawn beyond what had already generated in the manure, which had stood in the Mushroom house longer than it usually does before being beaten down. This bed is now showing abundance of Mushrooms. Let "W. T. G." satisfy himself that the manure is so dry that he cannot squeeze any moisture out of it before he attempts to make the bed. Do not reject the short pieces of straw. The manure may be got into a suitable state of dryness at this time of year if laid about 1 ft. thick in an open shed. Avoid excessive fermentation in preparing the material. Should it be wet and in quantity, put it in a heap sufficiently large to ferment. In a few days the top will be very wet; rake that portion off, turn the rest over, and do the same a second or third time. Maintain a steady temperature in the bed after the spawn is inserted, say from 60° to 65°. To accomplish this it may be necessary (though perhaps not at this time of the year) to resort to a covering of hay. If the shed is an open one, a covering of hay will be beneficial at all times. In a month after spawning the spawn will show signs of spreading; then cover the bed over with 2 in. of soil. Chopped turfy loam beaten firm is the best. The soil should not be moister than the manure when put on, but may be sprinkled in a few days sufficient to moisten the surface, and give it another beating.—W. P. R.

—In answer to "M." allow me to say that to the Mushroom house proper belong, in many cases, two great evils; it is too hot and too wet: from 45° to 50° is ample. Never water Mushrooms when uncovered; always water the top of covering. If good firm Mushrooms are wanted, keep all the ammonia possible in the manure; do not dry the droppings in sheds until all the nourishment is gone out of them, and then expect good Mushrooms. Another most important point is spawn; never use a brick of spawn which requires a hammer to break it; when you can break it with your hands it is fresh. It should have the appearance of mouldy bread. Mr. Barter's spawn I find excellent.—R. GILBERT, *Burghley.*

Cattell's Eclipse Late Broccoli.—This is one of the most trustworthy of late white Broccoli for becoming fit for use in May. Although our locality is what may be called mild, we cannot depend on a full supply of Cauliflowers until the end of the month; consequently a really late Broccoli forms a valuable aid, as regards maintaining the supply, where either Cauliflowers or Broccoli are in request the year round. Last year we sowed Cattell's Eclipse and other late sorts the first week in May, and as soon as the plants were large enough to handle, they were pricked out in beds 3 inches apart, and planted out finally as fast as crops of Peas, Beans, &c., could be cleared off the ground. Some were put out between rows of Potatoes planted at wide intervals to accommodate intermediate cropping. No fresh manure was added in any case, but the surface of the soil was kept frequently stirred. They made nice sturdy plants, with heads close to the ground, and, favoured by a mild winter, we had no losses. In February a little short manure was spread between the rows and lightly forked in; since then they have made rapid progress and very fine heads have been the result. In the case of all the early kinds, and even already of

some of the reputed late sorts, a goodly percentage has been cut; Catell's Eclipse, however, still shows unbroken ranks, with abundance of foliage to keep the heads from getting discoloured by exposure. As the sun gets power, it is necessary to break the leaves down thickly over the heads to keep them perfectly white, for although a sulphur-coloured Broccoli may be quite as good, pure white heads are always most highly prized either in market or for private use.—J. GROOM, *Linton*.

Veitch's Dwarf Curled Borecole.—This produces the latest supply of sprouts of any of the Brassica tribe that we grow. This season Cabbage Sprouts, Brussels Sprouts, and most other kinds of winter greens ran up to flower early; most of them were in bloom by the beginning of April, but Veitch's Late Curled continued to yield excellent sprouts throughout April. It is also one of the hardiest, and, being dwarf, escapes injury when tall-growing varieties like the Cottager's Kale are cut up by violent gales of wind. This season, owing to the plentiful supply of Broccoli, and spring Cabbages coming in early, the demand for sprouts has not been so great as usual; but, even for the sake of variety, it is well to have abundance of this useful vegetable. Sow the seed now, and plant out between rows of Potatoes; stir the soil well after the Potatoes are lifted, and this Kale will prove a reliable winter and spring crop.—J. GROOM, *Linton*.

HIGHGATE AND BARNET NURSERIES.

ANYONE interested in plants might spend a pleasant day in the various nurseries belonging to Messrs. Cutbush & Son, whose headquarters are on the crown of Highgate Hill. As in the case of other London nurserymen, the rapid outgrowth of London has driven this firm farther into the country, and therefore the nursery at Highgate is now supplemented by others at Barnet and Finchley, where a better atmosphere exists, and other conditions more favourable to the growth of nursery stock, though the inconvenience of intercommunication between widely separated nurseries must be a serious drawback.

THE HIGHGATE NURSERY is one of the most picturesque about London, occupying, as it does, an eminence facing the south, whence can be had a wide panoramic view, embracing a large portion of London. This branch of the establishment is mainly devoted to the growth of plants required for decorative purposes. Here are housefuls of Palms, Cycads, Cordylines, Ferns, and other fine foliaged plants, among which are some noble specimens of great age, which for many a season have helped to adorn the halls of the City companies on festive occasions, a privilege which this firm has long enjoyed. We happened to visit the establishment just when the Dutch bulbous plants for which this nursery is famous were at their best. One house was entirely filled with Hyacinths, Tulips, and Narcissus, creating, as may be imagined, a brilliant array of colour, and yielding an almost overpowering perfume. Amongst Hyacinths were scores of varieties, the most beautiful amongst which in their respective colours were the following: Under single reds we may class Fabiola, or Florence Nightingale, Howard, Garibaldi, Macaulay, Queen Victoria, and Von Schiller; lilac or mauve—De Candolle and Sir W. Mansfield, both very fine; whites—Gigantea, La Grandesse, Mont Blanc, and Grandeur à Merveille; blues—Bloudin, Marie, Duke of Connaught, Grand Lilas, Leonidas, Lord Palmerston, Czar Peter, and Charles Dickens; yellows—I da, l'Or d'Australie, and Bird of Paradise. An intensely deep blue, called black in trade parlance, is represented by such sorts as General Havelock, Prince Albert, and The Sultan, a fine new variety. The double flowered

sorts seem to be losing favour, and justly so, for more ungainly flowers, compared with the singles in some cases, could not be. The best of them here were Duke of Wellington and Koh-i-noor (red), Garrick and Van Speyk (blue). The above selections include the very best, all with large massive spikes and decided colours.

Single Tulips have been particularly fine this year, the most prominent in the collection of about a score of varieties being the scarlet, yellow, striped and white Pottebakkers, Prosperine, Fabiola, Roi Pepin, Rose Luisante, Vermilion Brilliant, Van der Neer, and Keizer Kroon. The double kinds were not in perfection at the date of our visit. There is one other feature in the houses of this nursery worthy of note, and that is the collection of double-flowering Chinese Primroses, which include some that have not become so prominent as their value and beauty entitle them to do. They differ from any other race of varieties we have seen—quite distinct from Mr. Gilbert's, of Burghley. Their names are—Emperor, with Fern-like leaves in dense tufts, and with a profusion of large, very double, rosette-like blossoms, of a rich purplish crimson; Stewarti, similar in habit, but rosy purple; and Princess of Wales, with pure white, fine double blossoms. These sorts we saw in perfection. Other double Primulas finely represented in the collection were Earl of Beaconsfield, Marchioness of Exeter, Blushing Beauty, Eva Fish, and Alba Plena.

The outside department of this nursery is occupied by a miscellaneous collection of trees and shrubs, among which we noted some remarkable specimens of Sweet Bay, symmetrical in form, and clothed from top to base with foliage. A fine stock of standard Mulberries and of evergreen Oaks in pots was likewise noteworthy, particularly the latter. The collection of Ivies is one of the specialties of the firm, consisting of about fifty distinct sorts, the latest addition to which is the beautiful variegated-leaved form of *Hedera maderiensis*. This is really a valuable decorative plant, and we happened to see it in fine condition, though scarcely so fine as when shown at South Kensington last year, when it received a first-class certificate.

THE BARNET NURSERY, the largest and most important, contains numerous glass structures, all well adapted for the classes of plants cultivated in them. One of them, some 80 ft. in length by 20 ft. in width, is filled with Camellias, a speciality with this firm. The plants, which are all in pots, range from about 1 ft. high to huge specimens in bushel pots and some 8 ft. or 10 ft. high. At the time of our visit they were covered with bloom. Amongst whites the most prominent varieties were Fimbriata, Alba plena, Candidissima, and Mathotiana alba, the last a lovely variety, possessing all the good qualities of the red Mathotiana. Commandatore Betti is one of the finest of the rose-coloured sorts, and one which everybody should include, even in a small selection. Countesses Derby and Orkney, the latter white striped with carmine; Queen of Beauties, with flowers of a delicate blush-pink, we saw in perfection; also Lavinia Maggi, Auguste Delfosse, Bonomiana, and Valtevedo. These include some of the cream, so to speak, of the cultivated varieties, and are among those that seem to do best in this nursery. The old Camellia reticulata was beautifully in bloom, and a really fine thing it is when grown in the form of small standards. Azaleas, too, of which there are here nearly 100 varieties, have a house specially devoted to them. Besides the Ghent kinds there is a small collection of hybrid varieties of the amœna type, all of which have been found valuable for early forcing.

AUSTRALIAN PLANTS.—The extensive collection of this class of plants, and the skilful way in which they are cultivated, constitute the chief attraction of this nursery. It was gratifying indeed to see such a healthy stock of a class of plants that are, unhappily, now-a-days so much neglected. A span-roofed house is filled with these hard-wooded plants, a large number of which were in flower. Here were Correas, consisting of about half-a-dozen different kinds, a larger number of Eriostemonas, Gompholobiums, Dracophyllums, Diosmas, Leschenaultias, Pultenias, Croweas, Chorozemas, Hedaromas, Hoveas, Grevilleas, and a host of other beautiful genera. Hedaroma tulipifera was particularly well represented. Of Boronias there were some half-a-dozen species in flower, consisting of B. elatior, pinnata, and serrulata, and the delicious fragrance diffused by the flowers of B. megastigma filled the whole house. Two of the most striking plants in the collection were *Coleonema rubra*, and *Hypocalymna robustum*. The former, which belongs to the Diosma family, is graceful in growth, and bears a profusion of small rose-pink blossoms in long elegant wreaths. The Hypocalymna is likewise an extremely pretty plant of the Myrtle family; indeed, the Rosy Myrtle would not be an inappropriate name for it. It has slender foliage and dense clusters of rosy pink blossoms thickly set on slender erect stems. Other plants in this house that attracted attention were *Aotus gracillima*, one of the Pea family, with long slender shoots profusely clad with blossoms of a bright yellow and dark red colour; and *Eutaxia myrtifolia*, another beautiful plant of a similar character. The propagation of all these Australian plants is practised here on a large scale. In the long narrow houses devoted to the purpose, cuttings of the various kinds may be seen by the thousand, ranging from tiny twigs just inserted to sturdy young plants ready for removal to the established stock department. There seems to be a large demand for such plants as Hedaromas judging by the quantity propagated, though if this class of plant received due appreciation, even such a large quantity as one sees here would be small compared with the number that should be grown.

HEATHS.—As in the case of Australian plants the reputation which this nursery has acquired for Heaths is proverbial, and certainly the collection is a grand one, both as regards the numbers of particular sorts grown and the number of distinct kinds represented. A house is set apart for the specimen and half-specimen plants, all now more or less in flower. The chief kinds grown on an extensive scale are E. hymenalis, gracilis, persoluta alba, caffra, and Wilmoreana, and less numerous, though still plentifully, kinds belonging to the aristata, Hartnellii, jasmiflora, and tricolor breeds. The yellow-flowered Cavendishi is grown unusually well here, as those who saw the plant of it that was exhibited at South Kensington last year can testify. The popular kinds are grown in the usual way in long frames till the weather permits of their being arranged on the Heath ground. The other houses are filled with the usual kinds of nursery stock, including a good collection of fine-foliaged plants, such as Caladiums, Dracenas, &c., while the outdoor department of this nursery contains good collections of trees and shrubs.

HOLLIES.—At the tree nursery, a short distance from the chief Barnet nursery, the main feature is the grand collection of variegated Hollies—certainly as fine a one as any we have seen. The soil and situation appears to suit the growth of Hollies admirably; the position is high and airy, and the soil a good deep loam, which well suits Evergreens. The collection contains

about half a hundred different kinds, ranging in size from plants of 1 ft. high to pyramids 8 ft. or 10 ft. high. The most noteworthy of the variegated kinds are Silver Queen, Golden Queen, Handsworth, and Waterer's Variegated, lutescens, Gold and Silver Milkmaid, ferax argentea, aureo-marginata, aureo-aureantica, and albo-marginata. Amongst green leaved kinds are Donningtonensis, Hodginsi, scotica, ferax pendula, Dahoon, dipyrrena, and balcarica, the last three distinct species.

At the Finchley nursery there are uncommonly well grown collections of fruit trees and Roses, the soil in the neighbourhood being evidently well suited to their growth. W. G.

GARDEN STRUCTURES.

VENTILATING PLANT HOUSES.

MUCH confusion often occurs from the mixing up of ventilation with matters belonging to heating. Ventilation is needed primarily for the removal of vitiated heated air and the substitution of cooler fresh air, and is obtained most readily by means of one or more openings at the highest point. For the greater part of the year and in most glass-houses this is all that is required whether from a scientific or other standpoint. Nothing is gained by an opening below, because the cold air which may enter there merely replaces that up to the level of its inlet. If the occupants of the place to be ventilated are too tender to have the chill air falling on them, as is the case in very cold weather, then it becomes necessary to bring into use heating appliances. The exit must still be above, and we should have (but seldom get) another inlet below the heating apparatus in order to warm the fresh air entering from the outside. It then becomes a question of heating, not of ventilating. If the inner air was cooler than that outside, it might be necessary to warm it to procure ventilation, that is, the discharge of the impure air above; but if we could draw the bad air out above without admitting any cool air there, we should suck up from below on to the plants a far colder air (if hot-water pipes were not in use) than could possibly fall down. Can Mr. Fawkes possibly prevent the entry of cold air from above either by the opening at the ridge horizontally, or diagonally down the roof, whether he opens his bottom ventilators or not? or can he ventilate the house from the bottom at all any more than he can heat it from above? Mr. Fawkes singles out especially, as open to question, a system of ventilation "which has one aperture for outlet as well as inlet extending parallel with the rafter"; but if he had ever seen a Paxton roof he would know there is never less than two openings, and he would also see that these openings extend higher up and as low down as those in a house of the ordinary construction, with the extra advantage of being able to open the reverse of which ever way the wind may blow. I should not trouble to refer to this but for its being an instance of prejudice against this system of ventilating shown both by some professional men and by some old-fashioned gardeners, notwithstanding the direct evidence of other equally good men as regards its advantages.

"A. D." speaks (p. 258) of the experience of large nurserymen showing that top ventilators are sufficient—many instances of which I could give; this was also the belief of Sir Joseph Paxton. In order to obtain a more equal distribution of fresh air over the whole roof, these sideways openings at intervals were found efficient, especially for vineries and fruit houses, ensuring a gentle movement at all times; while with ordinary top lights open, the air inside and out was often comparatively and equally stagnant, and often with bottom ventilation a strong draught of cold air was produced. For forcing houses, small shutters or grating inlets near the pipes were always recommended, chiefly to check that entry of cold air which usually takes place by the laps and

which were by that means turned into sufficient exits or top ventilators.

Let me now revert to the question originally asked by "Fenman," and suggest a way to make the wide gutter he proposes to have, and at the same time (if he wants it) secure an inlet for cold fresh air low down, whatever construction of roof above he may adopt.

The annexed section shows two half-brick walls at 9 in. apart, the upper courses being wider; on the top are laid concrete slabs 3 ft. by 2 ft., and on the outer edges the sills or plates of the glass roof; a little Portland cement at each of the joints 3 ft. apart and along the edge of the sills will form the cheapest and most durable 18-in. wide gutter "Fenman" can get. Now for the air inlets. Leave out a few half-bricks here and there in the walls (W), then by having a shutter at each end of the walls a current of cold air will be drawn in and be observable for a distance of 50 ft. in length. One of the hot-water pipes could be laid in the air space when building the walls, and so warm the fresh air as it enters.

A useful arrangement for storing rain water (usually a difficult and costly affair) can be made by building the 4½-in. walls at 2 ft. apart, and lining them with concrete slabs laid in cement. A chamber 100 ft. long so built would hold over 2000 gallons—a fine reservoir, taking up less space than the path Mr. Fawkes advised, avoiding the wide gutter (as such), and allowing for opening of side lights if wanted. I have tanked in several stoke-holes in this way economically, which are now as dry as possible.

Highgate Road.

B. W. WARRHURST.

—To heat hot-water pipes to raise the temperature of a house, and then admit outside air to pass over them, is about as mischievous a theory as ever was established. When there is a great disparity between the external and internal atmospheres, a constant change is going on through the laps of the glass even of the best glazed houses, and currents of dry heated air are undoubtedly the forerunner of many of the ills which plants under glass are heir to. If anyone is sceptical on this point let him take a given number of plants, pot them, and treat them in every respect alike, but set one half in a thoroughly ventilated house on a stage with air uninterceptedly passing in at the bottom and out at the top, and set the other half in a frame, pit, or sunken house with no ventilation except at the top, so that there can be no draught, and see after a month which is in the best condition. After this experiment he will, I think, probably take as much pains to exclude draughts as he has hitherto taken to get fresh cold air down to the lowest level, with all the elaborate precautions for warming it before allowing it to come in contact with the plants. Even the hardest bushes have to struggle for existence when the atmosphere is always in motion. I am no advocate for coddling plants, but I look on over-ventilation as a positive evil. It is not only wasteful as regards fuel, but injurious to plant health. Orchids are frequently cited as examples of subjects that require elaborate systems of ventilation. I could, however, quote notable examples of successful culture where no air whatever was admitted for months, except such as came in when the doors were opened and shut. I may point to a stove at Henham Hall which contained a lovely lot of Phalenopsis, mixed Orchids, and stove plants, all in exceptional luxuriance, although no air whatever was admitted except during very hot weather. I have known the lights on this house to be nailed down for safety for months, yet Mr. Fish and others have frequently alluded to the health and beauty of the Phalenopsis and other inmates. Ample ventilation is needed in fruit houses at the flowering and resting periods, but for plants to be

kept in good health, I believe that when the air is so cold as to need warming before it can be admitted to them, it will be safest to keep them shut up as closely as possible—otherwise the main object for which the house was built will be frustrated.—J. GROOM.

GARDEN IN THE HOUSE.

A Leopard's-bane bouquet.—When an effective bouquet of one colour is required for a hall or staircase landing, dressed high and flat, only the front requiring to be seen, there is no better flower to use than Leopard's-bane, or *Doronicum Pardalanchae*. It looks best in a moderately high flower-glass, and requires to start from dark leaves, such as *Heuchera sempervirens*, and some stiff greens are necessary to keep the flower-stems straight. I use a coarse river Grass, which is light and effective. As Leopard's-bane grows with long stalks (which must be stripped of their own green leaves), you can mount up the bouquet as high as you like, always bringing the flowers to the front, and showing no stalks. The shade of yellow is excellent; ladies look at it, and murmur, "Old Gold," which settles the question. Also it opens to lamp or gas light, improves in size, and lasts a long time in water. This plant grows well under trees and shrubs, and its pale green leaves are useful for dressing with other flowers. It has been flowering here since February.—M. E. C.

Ivy in corridors.—Inquiries are often made as to what kind of creepers to plant in corridors or covered ways where light is deficient. After trying all inanner of subjects for such positions I find that Ivy excels them all for the length of time during which it will keep fresh and green where few other plants would even live. We have along the entire south front of the mansion a covered way or corridor with a balcony above; consequently the lower rooms that open into the corridor only get the light that comes through the arches in front, and these are covered with Magnolias and a selection of choice creepers. This corridor was originally used as a plant room in winter and promenade, the arches being closed by means of movable lights. Ivy was planted to train over the roof, but in course of time the corridor was not required for plants, except on special occasions, and of late years the Ivy has had all the space to itself, and a really beautiful effect it has, forming, as it does, a bower of living foliage. The only attention it requires is an occasional pruning, plenty of water at the roots, and above all a good deluging overhead now and then with the garden engine to dislodge insects and dust. Any one having a similar place to cover should, instead of attempting the growth of ordinary creepers, devote their attention to Ivy, the prince of creepers for semi-dark positions.—J. GROOM.

NOTES FROM DUBLIN.

MR. SMITH, of Newry, brought some very fine hardy flowers in pots, consisting of Trillium, Saxifrage, Hoop Petticoat Narcissus, hardy Orchids, &c., to our spring show last week. So also did that "learned clerke," Mr. Tymons, who had a lovely group grown in pots in a frame or cold house. All the afternoon people buzzed around them like bees; indeed, complaints were made to Mr. Balfe that the man with the "old-fashioned flowers" was blocking up the whole show. Azaleas about half the size of Jumbo were neglected. I never saw any plants affect people like a potful of the Emperor Narcissus. I cannot keep it inside the gate here unless I lock it up. Mr. Smith sold all he had of it at a high figure, too. No doubt we are coming pretty nigh "touching the hem of the garment" so far as true gardening is concerned, and yet it is sad to see and feel and know that of all men the gardeners themselves have been the last to get a bare notion of what gardening really means—a beautiful covering for bare earth in return for her ample gifts of food and clothing to us.

F. W. B.

INDOOR GARDEN.

THE TONGA PLANT.

(EPIPRENUM MIRABILE.)

It is now between two and three years since the public began to inquire what the meaning could be of the mystical word "Tonga," which appeared

at every railway station and upon every hoarding in and about London and our principal towns. It was soon announced, however, to be a specific for neuralgia, and since that time it has, unlike most other novelties introduced in such a conspicuous way, not only maintained its reputation, but increased it. When first introduced, Tonga was to be had only in the form in which it was sent here from Fiji, namely, in small bundles or balls, measuring about 4 in. or 5 in. by 3 in. in diameter. The wrapper in which the substance was contained consisted of portions of the fibrous spathe of the Cocoa-nut Palm, and the contents appeared like pieces of bark, leaf, and woody fibre broken so small as to make it extremely difficult to identify any portion of it botanically. The instructions as to its use were as follows: "The bundle, without being unfastened, to be steeped in half a tumbler of cold water for ten minutes, then squeeze the liquid from the bundle back again into the tumbler, and take a claret glass of the infusion three times a day, about half-an-hour before each meal; dry the bundle and hang it up in a dry place to prevent its getting mouldy. It will answer for twelve months." Since this, however, the medicine has been prepared in a more elegant form.

The only record of its use was that which accompanied it when first brought to this country, that

it had "been used for several years by the aborigines of the Fiji Islands, and a European, who married a chief's daughter, learned the secret from his father-in-law, in whose family the knowledge of the composition of this remedy had been an heirloom for upwards of two hundred years."

From a careful microscopical examination of the fragments contained in these bundles, Mr. E.

in the substance accompanying it, has since been borne out by other observers, some of whom have shown that this foreign matter, so to speak, can confidently be referred to *Frema taitensis*, a plant belonging to the Verbenaceæ. The true Tonga plant is now referred to *Epipremnum mirabile* (Schott), and this identification has been made by Mr. N. E. Brown, of the Kew Herbarium, in whose

hands a leaf of the plant was placed, and who immediately recognised it as being identical with a plant in Mr. Bull's possession, which had been received from the Fiji Islands by way of the Botanic Garden, Sydney. As will be seen from the figure, the plant is a climber of a very ornamental character, bearing, as it does, large, shining, dark green leaves, more or less oblique, and having numerous pellucid spots scattered along the region of the mid-rib. In young plants the leaves are white, but as the plants get older they gradually become more split up until they are finally pinnatisect. The plant seems to have a wide distribution, being found not only in the Fiji Islands, but also in Java, Sumatra, Amboyna, Timor, and tropical Australia. *Epipremnum mirabile* seems to have other uses than that for which it has become famous in this country, for we are told



The "Tonga" plant (*Epipremnum mirabile*).

M. Holmes, of the Pharmaceutical Society, arrived at the conclusion that they belonged to some Aroideous plant, and probably to *Rhaphidospora vitensis*; some portions, however, clearly belonged to a plant of a totally different Order, but there was no doubt that the active principle of Tonga was to be found alone in the Aroid. Mr. Holmes' discovery, both as to the botanical affinity of the plant forming the principal portion of the drug, and the absence of any active principle

that in Java the internal portions of the terminal buds of the flowering-stem are, after being bruised, used as a poultice for sprains. They are also, as well as the leaves, eaten by horses and cows.

J. R. J.

Bouvardia Alfred Neuner.—If your Greenock correspondent will again read our statement with regard to this pretty, *Bouvardia*, he

will observe that we distinctly say that side shoots taken from the original plants imported by us direct from the introducers in America produced single flowers. If "Greenock" requires additional evidence upon this head, we should say there are plenty of cultivators ready to confirm our statement, which was made purely in the interests of growers generally.—JAMES CARTER & Co.

Chinese Primrose seed.—Chinese Primroses are now increasing at the rate of some half-dozen kinds every year, and they bid fair to increase far more rapidly presently. Were they plants that, like Pelargoniums, could be propagated easily by means of cuttings, the increase of kinds would not matter; but every fresh kind of the Chinese Primrose means another trouble added to seed purchasers, not one in the hundred of whom wants packets of twenty kinds, as are sometimes advertised, but rather a good mixed packet of seed that includes a dozen well contrasted sorts. I am disposed to think if seedsmen would offer mixed packets of seed that would produce all their best kinds at moderate prices, they would sell far more and give much more satisfaction than by offering so many varieties.—A. D.

STOVE VINCAS FROM SEED.

THESE beautiful flowers used to be frequently met with in collections of stove and greenhouse plants at exhibitions, but now one seldom sees them, though they may be raised as annuals from seed. We usually sow early in January in pots or pans, and as soon as the young plants are up and large enough to handle they are potted off into 2½-in. pots, and replaced in a moist heat of about 60°. There they soon commence to grow, and when they have made two good pairs of leaves, we pinch the growing point out to induce them to push side shoots, which they do with such regularity that finely formed plants may be produced without any tying or training whatever. They must be kept regularly shifted before they get pot-bound, until they have reached the desired size, when stopping must be discontinued and the flowers allowed to expand. At all times the atmosphere in which they are grown must be kept very moist; red spider is their greatest enemy, and the safest remedy is to keep the plants growing freely in a rich compost, with plenty of liquid food at the root. Thus treated, for summer and autumn decoration they are exquisite, and in addition to the kinds called *rosa* and *alba*, there is a white variety with a red eye which is very pretty. If large plants are required they must be kept rather dry when done flowering and stored in an intermediate house. If cut back in spring and grown on as ordinary stove plants, they make most effective subjects either for exhibition or decoration.

J. GROOM.

Calanthe Sieboldi.—This is not one of the showiest of Orchids, but when well grown it is a handsome plant and curious, inasmuch as no other has such peculiarly marked foliage, which is spotted with white. The flowers—about 1½ in. or so across, and produced in long, loose spikes, well above the broad leaves—are pale yellow, the labellum being margined with chocolate brown. It is a native of Japan, and the most noteworthy point about it is that it is nearly, if not quite, hardy. It is now in flower in Messrs. Henderson's nursery, Maida Vale, where it is grown among cool house Orchids.

Epidendrum bicornutum.—One could scarcely overrate the beauty of this charming West Indian Orchid, which is now in flower in some of the best collections of Orchids about London. It is one of the loveliest of the family to which it belongs, and it is a matter to be regretted that it does not yield so willingly to the cultivator's skill as most other kinds do. There are grand specimens of it now in flower at Kew, one plant being furnished with several flower-spikes. The whiteness of the blossoms and their wax-like texture render them extremely pretty, and their

beauty is enhanced by their being borne on slender stalks. At one time it was a very scarce Orchid, but now it is imported somewhat largely. Only the other day an importation of it arrived at the Pine-apple Nursery, Maida Vale, in fine condition and in large masses. There are likewise some excellent flowering specimens of it in the nursery just named.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

A large bouquet of double yellow Tulips is held in a jar of pale blue Dutch pottery, and a capacious tureen-shaped vase of Italian faience has a good effect filled with a mixed bunch of large Tulips—scarlet, single and double, crimson and brown striped with yellow. A simple, but very brilliant dinner-table decoration is of single rosy-scarlet Tulips (*Gesneriana*) in baskets of cream-coloured Leeds ware. Boughs of Spanish Broom, pale yellow and white, stand in a tall jar, and the earliest purple German Iris and the white Iris *florentina* are grouped together with their own leaves. A brass bowl holds a large bunch of white Lilac with its own pale green leafage, and a silver punch-bowl, on a groundwork of darkest greenery of Ivy boughs, has wreaths of Clematis montana piled over and twined about the dark foliage. A good effect on a rather large scale is got by some massive spikes of purple Wallflower (double German), with pure white double Tulips and large fresh leaves of Saxifraga crassifolia. A delicate Venetian finger-glass has double yellow Bachelors' Roses. In pots are various Amaryllis and Streptocarpus biflorus, a good room plant.

FLOWER GARDEN.

W. WILDSMITH, HECKFORD.

Eucalyptus.—Of this there are numerous varieties, but not more than four or five kinds that are generally cultivated, and these mostly as conservatory plants in the way of climbers for pillars and rafters, and for such positions in cool houses they do very well for a year or two, but after that time the plants get naked stemmed and require renewal. Owing to its supposed sanitary and medicinal properties, *E. globulus*, the Blue Gum tree, has of late years become well known, and great has been the disappointment to find that it was not sufficiently hardy to withstand the severity of the winter of 1880 and 1881. It is, however, hardy enough to stand our ordinary winters, plants of it here having stood without any protection for four years previous to 1880. The variety *E. alpina* has proved perfectly hardy, growing, as it does, to a height of 6 ft. in the season; and being so uncommon both in colour and habit, it may be classed among the very few kinds of comparatively hardy plants that can be used as subtropicals, a not less recommendation being that it is very easily raised from seeds. Our plants of it, sown in February last year, are now 6 ft. high, and they were not at all injured by the sharpest frost of last winter—15° occurring between December 20 and 24. They look well as central plants in large beds of other tall growing subtropicals, but perhaps their most appropriate—certainly their most telling—position is as foreground plants to shrubberies in which there is a preponderance of dark coloured foliage such as that of Portugal Laurels and Yews.

Sub-tropical garden.—The beds may now be edged and raked down ready for planting, but previous to doing this give such beds as are to be filled with plants that require abundance of manure a good scattering of guano or other fertiliser, which will thus get covered with soil at once. A commencement may then be made to plant out the hardier kinds, such as ornamental shrubs, Australian Dracenas, Eucalypti, Hemps, Funkias, Fish-bone Thistles, and also the hardier edging and ground-work plants, such as Cerastiums,

Ajugas, Sedums, Veronicas, and Harrison's Musk; the last is a fine ground-work plant for large growing dark-leaved plants in the way of Gibson's Ricinus and Canna Van Houttei, and the partial shade which these afford seems to be just what is needed to keep the Musk in continuous flower from early in summer until late in autumn. The tender section of plants will still need attention indoors; it will not be safe to plant them out till quite the end of the month, and some of them not till June. They should not be allowed to get root-bound, but be grown on freely, being given plenty of space and air. A single plant well grown affords more real satisfaction, and does as good service when planted out as do a dozen that have been buddled together in heat. Tobacco, Chilian Beet, Love-lies-bleeding, and Perilla do best when planted in a very young state; they will now be ready to prick out into boxes, which when filled place in frames, and keep them rather close till the roots have begun to work in the new soil, then give air freely, and plant out in the last week in this month.

Mixed flower borders.—The present showery weather affords a good opportunity for getting these completely furnished for the summer. Asters, Stocks, Marigolds, Larkspurs, Zinnias, and indeed all kinds of annuals may be utilised for filling up vacancies. They should be planted in clumps containing five or seven plants each, taking pains to have the taller growers at the back part of the border; not that uniformity of height in such a border is desirable—far otherwise, but simply that the arrangements may not look too lop-sided, owing to the tallest plants being too much in juxtaposition with the shortest. The commoner kinds of plants may still be sown for late flowering, viz., Delphiniums, Pyrethrums, and Delytras. Tall Veronicas will now need tying up, in doing which endeavour to avoid a bunched-up, broom-like appearance. On the contrary, tie them as loosely as is compatible with their freedom from injury by wind or heavy rains. If continued gaiety of the borders be desired, and time can be devoted to the matter, many of the earliest kinds of spring flowers, such as Primroses, Daisies, and Arabis, that have now done flowering, may be taken up and planted in the reserve garden, and their places filled with any of the annuals mentioned above, or with ordinary kinds of bedding plants, such as Pelargoniums, Calceolarias, Petunias, and Verbenas; single and double Dablias, Hollyhocks, Marvel of Peru, and any spare Cannas and Castor-oils that there may be will look well at the back part of the borders.

General work.—Weeding and, after rain, rolling walks and mowing with the scythe for the first time new lawns that are being formed will now need attention. Get vacant beds in readiness for the reception of bedding plants. Transplant spring flowers and bulbs to the reserve garden, and at the same time increase the stock of desirable kinds by division and offsets. Clear Roses of green-fly by syringing the plants with soap-suds, and in bad cases with Tobacco water. Tie up climbing Roses, and direct the growth of recently-planted climbers, such as Ivy, &c., by tacking in the principal shoots.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Boronia elatior.—This is such a profuse-flowering subject and so easily managed, as to make it deserving of general use wherever a greenhouse or conservatory exists. It will last in flower for over two months, and from its graceful habit of growth it is a pretty object even when not in bloom. As soon as the plants have done flowering they should be slightly cut over, shortening the last season's shoots about one-third their length; if this is done the plants will keep for years without getting straggling or too large for ordinary purposes.

Hydrangeas.—A sufficient stock of cuttings of these should, if not already put in, be seen to at once, using the young shoots, which the spring-

flowering plants usually produce freely. If the cuttings are kept moist, close, and in a little heat, they will root in a fortnight. More plants intended to bloom should be pushed along to precede those that have been retarded, giving them plenty of manure water as growth progresses. Quick-growing, gross-feeding plants, such as these, are only seen in their best condition when liberally supplied with nutriment. Dip them in Tobacco water or fumigate as soon as aphides appear.

Lilies.—As the shoots of these extend keep the pots well up to the glass; for the summer and autumn flowering kinds a cold frame in a light position, with the lights off in the daytime, will favour stout, sturdy stems much more than if kept in a plant house. If the stems are at all drawn up quickly the lower leaves will be proportionately thin in texture, rendering it impossible to keep them on until the plants bloom. As the earliest will now be growing freely supply them regularly with manure water, so as to get them strong, as on this to a great extent depends the quantity of flowers which they produce. It is the nature of some Lilies to form a quantity of roots from the lower joints of the stem above the bulb; means should be taken to preserve and encourage these by adding soil, so as to cover them, or by potting them lower in pots a size larger; these stem-roots may not assist the growth of the bulbs, but they have a marked influence on the flowering.

Chrysanthemums.—Late struck cuttings should at once be placed in 5-in. or 6-in. pots, and treated so as to get them on, stopping the shoots of those that are intended to be grown bush fashion. Do all that is possible to keep them sturdy; if they are at all drawn up in their earliest stages it is useless to expect the lower leaves to stand until blooming time. To this cause quite as much as to inattention in the way of giving with water through the summer is attributable the naked condition these plants get into before flowering.

Achimenes, Gloxinias, and Generas.—*Achimenes* started some time back should not be allowed to make too much growth before they are transferred to the pots or baskets in which they are to bloom. It is well not to overcrowd them; if this is done, their flowering will be comparatively short-lived, and the leaves will be almost certain to have a sickly yellow colour. Few summer-blooming plants are so bright and effective as these when well managed; where it is desirable to have them in bloom over as long a season as possible, they ought to be started into growth in succession, or else a portion should be subjected to less warmth than the rest, but they are heat-requiring subjects, and will not do well if deprived of a sufficiency of warmth during the early stages of their growth. *Gloxinias* that were started early will now be pushing up their flowers, and need all the light that can be given them so as to keep the foliage stout and give strength and substance to the flowers and the stalks on which they are borne. The flabby, weak, half-prostrate condition in which these plants are often found destroys the character of both the foliage and flowers. The solid tubed species and varieties of *Genesra*, such as *G. Cooperi* and others, are beautiful and most successful summer-flowering plants, not nearly so generally grown now as they deserve to be. They succeed with moderate stove heat, and occupy comparatively little room; and where sufficient quantities of them are grown a succession can be kept up. *G. Cooperi* will flower twice in the course of the season if well treated, the second crop of shoots yielding a head of bloom little inferior to the first. The variegated section is handsome both in leaf and flower, but unless means are taken to keep them free from such pests as mealy bug and thrips, their leaves soon lose their beauty, the means that have to be employed to rid them of the insects destroying their velvety, lustrous appearance.

Camellias and Sparrmannia.—*Camellias* that flowered earliest will now be in active

growth, and if at all deficient in vigour through want of root-room, soot water should be given once a week; this will speedily show its effects in the increased size and deep colour of the leaves. *Sparrmannia africana* is another plant easily grown, and one of the freest of free bloomers. Its white flowers, set off with quantities of singular filaments, have a distinct appearance unlike anything else, and being produced during a considerable part of the winter and spring, render the plant doubly useful. To secure large specimens of it, cuttings ought to be struck in the usual way in a moderate heat about the beginning of March, and grown on with plenty of room, as required in summer. For such plants 12-in. pots will not be too large in which to bloom, but cuttings put in now will make good flowering examples in 8-in. or 9-in. pots. Ordinary sandy loam will suit them, and they like plenty of light, the foliage standing more sun under glass than that of most things.

Forced shrubs and bulbs.—As has before been pointed out, the too common practice of allowing shrubs, such as *Andromedas*, *Lilacs*, double-flowering *Plums*, *Ghent Azaleas*, *Laurustinus*, and *Rhododendrons*, after having been forced to remain comparatively uncared for is wasteful. Although such plants usually require a second season to bring them up to the condition they were in previous to forcing, it is well to recollect that in most cases the warmth to which they have been subjected has caused them to make a quantity of young growths in addition to their roots also being set in motion, and unless they are gradually inured to the open air before being turned out of their pots, they suffer so much as to be reduced to all but a state of worthlessness; whereas, if duly cared for, with, after blooming, a year's rest, they will again do good service. The course of treatment they have undergone tends to check all inclination to exuberant growth, in place of which a disposition to flower profusely is secured. If the latest bulbs, such as *Hyacinths*, *Narcissus*, *Tulips*, *Crocuses*, and *Soilsas*, which will have bloomed without much forcing, are similarly well cared for by being turned out in the reserve ground and sufficient water given, they may be made useful in different ways, as all but the *Hyacinths* will, after an interval of a year, bloom in the open ground as well as if they had never been subjected to pot culture.

ORCHIDS.

J. DOUGLAS, LONFORD HALL.

East India house.—Sufficient instructions have been given (p. 242) as to shading this house and the best positions for the different sections of Orchids. It may, however, be well to again allude to the *Angræcums*. They require a warm, shady position, and a constant watch must be kept for thrips; they get into the axils of the leaves, and are often not seen until traces of their work are observed on the leaves. It is a good plan to have a small vessel filled with diluted Tobacco water placed in the house, and a small camel's-hair brush at hand with which to apply it to the leaves whenever traces of the insect are to be seen. If it is possible to fumigate the house, that may be done on successive evenings; it will kill both thrips and aphides. In our case there are plants in the house that will not stand Tobacco smoke strong enough to kill thrips, and therefore we must be content to dip or wash them. Plants of *Odontoglossum Roezli* in this house have been much infested with thrips. They ought now to be clean, for the flowers just opening will be injured by dipping; even flower-buds are injured by the operation, and do not open well. We also grow our *Calanthes* in this house, although one 6th lower would probably be better. The evergreen section, such as *C. veratrifolia*, *Masuca*, and *Domini*, were surface dressed with good loam and rotten manure nearly two months ago, and thick, healthy white roots are now running up into the loam. If not already surface dressed, that operation may yet be performed, and as the flower-

spikes are well advanced (indeed, in some cases the flowers are open), it is necessary to watch them in order to destroy any of the yellow aphids, which sadly mars the beauty of the pure white blossoms. We remove the pest with a camel's-hair brush, but it ought to be destroyed by dipping in some solution before the spikes are seen above the foliage. The temperature of this house should not fall below 65° at night, and often it will be 70° at 10 p.m., falling perhaps a few degrees before morning.

Cattleya house.—I remarked (p. 243) that *Cattleyas* should be shaded as soon as the leaves felt warm to the hand, through the sun acting on them in the morning. Since then I have seen a collection where they are scarcely shaded at all, except by the use of a partially opaque glass. I felt the leaves between 2 and 3 in the afternoon, when the sun was shining on them, and they felt very warm indeed. The plants were syringed overhead, and many of them seemed to succeed remarkably well. C. Skinneri making the best growths I had yet seen on this species. I am still, however, of the opinion that the safest way in which to grow *Orchids* of any kind is to shade them from the sun, but I would let them have as much light as possible. *Cattleyas*, such as *C. Mossie*, *Warneri*, *Mendellii*, &c., are pushing rapidly into bloom, and ought to be in a light position near the glass, so that when the flowers open they may be good in substance and colour. The only way by which *C. gigas* may be flowered satisfactorily is to suspend it near the glass in baskets. Large specimens ought to be raised in pots, so that the tops of the leaves may not be more than 1 ft. from the glass. *Odontoglossum Phalenopsis* should now be in flower. This is a very desirable species, and one which lasts long in perfection, but it seldom does well unless suspended near the glass. It requires to be dipped frequently in weak Tobacco liquor to destroy red-spider, which attacks it, and often does much mischief before it is observed. The *Anguloas* are now coming fast into flower, and as roots are being formed at the same time, they also require considerable supplies of water. See that no yellow aphides are lurking in the wrinkles of the leaves. As large importations have recently been made of *Dendrobium Wardianum* and *crassinode*, those who have plants requiring to be potted should use small shallow pans. They are light and can easily be suspended from the roof; as soon as roots are emitted from the base of the new growths, watch for slugs and give water freely.

Cool house.—With hardly any artificial heat the thermometer seldom falls in this house below 55° at night, unless perhaps an hour or two before daybreak, when the thermometer is low outside; under these circumstances it is desirable to remove any cool-house plants that have been wintered in the *Cattleya* house to their summer quarters in the cool house. Such *Masdevallias* as *M. tovarensis* and all those of the *Chimæroides* section, also *M. Wagneri*, &c., would now do better in the cool house. Indeed our plants of *M. tovarensis* were removed long ago, as we found, by trying half of them in the cool house and the other half in the *Cattleya* house, that they did best where they were coolest. It may be, if the winter was more severe, that they would succeed best in warmer quarters. Numbers of plants of the *M. chimæra* section of *Masdevallias* have been recently imported, and all of them, except the true *chimæra*, which produces its flowers from an upright stem, should be potted in baskets, the flowers being produced from the base of the plants, the flower-stems having a downward tendency. They like a position near the glass, but require a moist atmosphere, and, like the rest of the *Masdevallias*, plenty of water at the roots. The cool house is now gay with flowers of *Odontoglossums*, and the earliest-flowering *Masdevallias*, such as *M. Veitchii* and *M. Chelsoni*, are in flower, and form a striking contrast to the wealth of white, bluish, and variously spotted forms of *Odontoglossum cirrhosum*, *Pescatorei*, and *Alexandree*. While there are so many plants in flower we are anxious to keep them in good

condition as long as we can, and are careful not to sprinkle too much water about at night. The flowers do not damp off so much when there is a little heat in the hot-water pipes as they do when these are quite cool. A circulation of air night and day promotes the health of the plants and tends to the better preservation of the flowers.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Cherries and Plums.—Examine the trees and fumigate if necessary before the fruit changes colour. Green fly may easily be eradicated, but the black and brown aphids often give a great deal of trouble, and it is not always convenient to cut off and burn the points of the shoots; but if taken in time, regular dipping in Tobacco water will soon clear the trees. As the ripening period approaches, see that the roots are in nice condition and properly mulched to keep in moisture. Go over the trees and stop all superfluous shoots at the fourth leaf, tie in leaders, discontinue syringing, and protect from birds by hanging fishing nets over the ventilators. If trees in pots are too thickly set, they may now be thinned. Feed well and mulch to keep the surface moisture in the pots and to prevent the constant use of water. Syringe Plums twice a day with soft water until the fruit begins to ripen, thin well when stoned, and feed with liquid at every watering. Plums will stand more heat than is good for Cherries, but nothing is gained by its application. Fumigate for fly. Keep the trees pinched and tied in, and see that Golden Drop and other late kinds intended to hang are not distressed by overcropping.

Melons.—Where the pot system is followed the first batch of plants will soon be ripening off their crop of fruit, and time being an object, see that another set is thoroughly established in fruiting pots ready to take their place. Although cleansing after the first crop is not absolutely necessary, cleanliness is an important item in good culture, and always pays for the small outlay in quicklime and sulphur. When the fruit in succession houses has attained the size of ducks' eggs, select the fittest for swelling away, evenly together, cut off duplicates and all lateral growths, top-dress with heavy loam, bone dust, and dry cow manure, and feed liberally. Avoid wetting the foliage at the morning syringing, but damp all paths, walls, and surfaces; ventilate freely until noon, and syringe overhead after closing for the day. Pay particular attention to plants in pits and frames, and carefully avoid producing a check by stopping or cutting during the time the fruit is setting. Fertilise all female blossoms, and at the same time draw them up above the foliage to the influence of solar heat and light. When a good set has been secured, pinch two joints beyond the fruit, elevate those intended for the crop on inverted flower-pots, and trim away all surplus growths. If the bed of soil has been made between two planks placed 2 ft. apart, the advantage of the plan will now be discovered in the facilities offered for top-dressing, ramming, and feeding. Melons in pits and frames should never be shaded, neither should the soil at the outset be enriched with manure, but food of the richest quality may be given to them during the time they are swelling their fruit.

Hardy fruit.—Never perhaps have fruit trees of all kinds broken away in a more satisfactory way than they have done this spring, and up to Sunday morning, the 16th instant, when nine degrees of frost followed a wet, sleety day, our prospects were unusually promising. Plums and early Pears on pyramids and bushes have been much injured. Currants, too, have suffered, but Gooseberries, where protected by their leaves, seem to have escaped, and trees on walls are quite safe. Owing to the earliness of the season, the performance of some operations, notably that of disbudding, seems to require prompt attention, but considering that we are just out of April, the little-and-often system of taking off a few shoots at a time should be strictly adhered to;

and although the trees may be the better for having the covering removed, it should be kept within easy reach, and temporary copings should remain on the walls for some time longer. Give regular attention to the thinning of Apricots, which are an immense crop, and wage incessant war with the active grubs, which soon do serious mischief, particularly where the trees are heavily cropped and there is a dearth of foliage. Wash the trees well with clean water when days are mild and cloudy. Mulch the borders with good rotten manure and old lime rubble, as calcareous matter will be in great demand at stoning time, and water copiously to insure its reaching every part of the soil in which the roots are embedded. Take the foregoing growths off Peaches, also the small fruit from the shoots. Wash well with clean water, and always have the usual insecticide ready for application to parts affected on the first appearance of green fly. Examine the borders and see that the recently root-pruned or old trees do not suffer from the want of good mulching and feeding. The usual mode of training a Peach tree against a south wall or within a few inches of a glass roof, so as to expose every leaf to the sun, is a most trying position, and unless a liberal supply of water is given to the roots and foliage, insect life will soon be abundant, and heavily cropped trees will ripen the fruit prematurely if they do not cast it when stoning. Look over Cherries and Plums on walls, destroy the grub by pinching the points of the shoots, and dip or syringe with Tobacco water on the first appearance of black or brown fly. The latter soon paralyses the young growths, and the grub makes very short work of a crop of Cherries; hence the importance of thoroughly cleansing the trees and walls when the trees are unalloyed in winter. Maider Strawberry plants from which the current year's supply of runners is to be obtained may be divested of their flowers, well mulched, and watered if necessary, and autumn-planted beds may be made very firm by treading when the ground is dry. If fresh stable litter is plentiful and at hand all the fruiting beds will be the better for a good covering after rain and before the flowers and foliage get too forward. In due time the rain will carry the ammonia down to the roots; sun and wind will bleach the litter and render it equal to new wheaten straw long before the fruit is ripe.

Cucumbers.—Where the Cucumber house is divided into several compartments, sections in which the plants have been longest in bearing should be cleared in regular succession to make room for young plants which come into bearing in a very short time, and the necessity for constant fire-heat having ceased, a clean, healthy growth will be secured throughout the summer. It will be necessary to clear away all old soil and plunging material prior to scalding, cleansing, and washing with quicklime, otherwise the usual pests—spider, woodlice, and worms—will soon re-establish themselves. Make the hills or ridges for summer use as far as possible from the top-heat pipes, and endeavour to secure a steady, lasting bottom-heat from fermenting materials in preference to having constant recourse to firing, for much as the Cucumber can and does often yield good crops for a time under high pressure, all practical growers are agreed that a top-heat ranging from 70° to 85°, with air when draughts can be avoided, and a bottom-heat of from 80° to 90°, will keep them vigorous and fruitful as long as daily details are properly attended to. If old plants cannot be dispensed with, cut them over and ply the syringe well, using water at the temperature of the house at the time of closing. Shade for a few days, and let the heat on fine afternoons run up to 90° to economise night firing. Avoid the use of solid manure for the roots, but feed well with tepid liquid and earth with rough fibry loam from which the fine particles have been separated, and a liberal mixture of old lime rubble, which will absorb and give off moisture when most needed by the foliage. Spring-sown plants in pits and frames will now be in bearing and in some danger of being over-cropped. Dress over as often as the weather will permit, peg out

the young Vines, and carefully guard against getting the foliage too gross by constant stewing in a rapid atmosphere, but keep it stout and healthy by giving a little back or front air, according to the direction of the wind, on fine mornings. Shut up about 3 p.m. with a flush of sun-heat and moisture, and let it gradually descend to 70° for the night. If all the heat is obtained from fermenting materials, renovate back and front linings alternately. Cover well with dry mats, and provide for the escape of noxious gasses by giving a chink of air after covering up for the night.

MARKET FRUIT GARDENS.

J. GROOM, LINTON PARK.

WHERE these have been roughly dug during the winter, as is the custom about here, many strong rooting weeds will now be pushing up strongly, even though they have been buried for months. Coltsfoot, Docks, Couch Grass, &c., will find their way to the surface if only buried one spit deep, and experience proves that in this stiff soil, unless spring and summer cultivation are strictly carried out, the land soon gets into a foul condition, as in autumn, owing to the press of work connected with harvesting the fruit, the weeds generally make rapid headway, more especially if the season be wet. At the winter cultivation it is therefore difficult to clean the ground properly. It is dug as roughly then as possible, so that the frost may act on the lumps of soil and pulverise them. Now, therefore, is the time when workmen, armed with stout three-pronged hoes like little forks set on a handle like a rake, proceed to pull over the lumps just named, and work them down to a fine tilth, bringing as the work proceeds the large weeds to the surface, when in their blanched state they quickly wither up. When quite dry they are collected and put in heaps to burn; this thorough stirring destroys all the seedling surface weeds and renders the work of destroying succeeding crops a light matter, as with a well pulverised surface hoeing with draw hoes is performed at a trifling cost per acre, and when the bushes or trees are wide enough apart, the horse hoe and harrow are used instead of manual labour.

Gooseberry caterpillar.—A sharp look out must now be kept for Gooseberry caterpillars, for if allowed to get established, they not only spoil the crop, but the bushes as well. In this locality acres of bushes divested of foliage last year are looking very weakly, and are bearing very light crops, while those carefully cleared of caterpillars are heavily cropped. There are many remedies for this pest, and many ways of applying them, but the general plan is to dust powdered hellebore on the bushes when the first signs of caterpillar appear. The hellebore kills all it touches, and if followed up a few times, will usually keep the bushes quite clean. Tin canisters with holes made in them, like flour-dredgers, are employed for dusting the trees, and as the caterpillars usually start from the centre, and clear the leaves off the tips of the shoots, it is necessary to lift up the outer branches and carefully inspect the centre of the bushes, for they multiply so rapidly, that if allowed to remain many days undisturbed, their destruction is almost hopeless.

Grafted trees.—All kinds of grafted trees will now need frequent inspection, as the heavy showers we are now experiencing will loosen the clay coverings, and if not replaced quickly, the drying intervals between the showers act most injuriously on the graft, and that, too, at the most critical stage of its existence. Any coverings that have given way must therefore be replaced at once, and those that are cracked must have some fresh clay worked into the fissures, as the more thoroughly air is excluded, the more certain will be the success of the grafts.

Recently planted trees must be kept firmly staked and tied to prevent wind-waving, for as the leaf gets heavy, the strain will be even greater than it now is. See that they do not get

chafed; put plenty of soft material round the stems before tying, as unless the top is kept steady, the young freshly formed rootlets get broken, and the tree thereby considerably checked. Look to top-dressings; see that they are not only ample, but also frequently stirred. In the case of old orchards on Grass, this is a good time to remove Nettles, by forking them up by the root, also Dock, Thistles, and other coarse growing weeds. Keep an extra supply of sheep grazing under the trees now, as in addition to the abundance of Grass there is usually green garden crops that can be spread in orchards to supplement their food. All kinds of the Brassica tribe, such as Cabbage stalks, winter greens, &c., when running to seed are far better put into the orchard for the sheep than on the rubbish heap, as the little they leave of the hard stalks can be raked up and burned when dry. The season for gathering fruits will soon set in. About here vast quantities of Gooseberries are picked green, and those who get them forward enough for the Whitsuntide market usually get a high price for them. See to the stock of baskets, packing paper, labels, sticks, &c., so that when required, no delays may arise. Many of these can be prepared on wet days when outdoor labour is at a standstill, and the profits of fruit growing demand that economy of time as well as of other resources be practised if the cultivator would live by his labour.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

Herbs.—Sweet Basil should be sown in a frame under glass, and for a very early supply in pots in heat. When fully grown and just showing flower, it should be dried, powdered, and kept in bottles corked up tightly; in fact, all herbs retain their flavour when kept in this manner. Mint should now be planted, both the Spearmint and Peppermint. The usual system pursued is to lay in three rows in a shallow drill, but the better plan is to take cuttings of them, *i.e.*, the shoots that come away from the old roots with a small piece of white stem, and which are sure to grow if bedded in nice light land. Concerning Sage, the old proverb, "Plant Sage in May, it is sure to pay," is literally true; slip the side shoots from the parted plant, and plant them with a dibber. This herb makes a good edging plant where trim Box edging cannot be had. Borage needs but little attention; where once grown scores of seedlings make their appearance, and supply all our wants gratis. Perhaps the most useful of all herbs is the knotted Marjoram; this should be sown under glass, and planted out in small tufts the latter end of May. Tarragon is a useful herb, but in many places does not do well. Here it grows fine and strong. We part the old plants yearly, and replant them in a different place, giving them a few barrow-loads of burnt refuse. Such herbs as Savory, Thyme, Marigold, and all the more common varieties do well sown outside the first week in May. Lavender we strike from cuttings under handlights, and also Rosemary; both are very useful. Lastly, our good friend Parsley must not be neglected.

Tomato plants ought now to be 1 ft. high, and should worthily occupy 6-in. pots before the 15th of May. They will be showing flower, when planted by the side of south walls, will begin fruiting at once. President Grant Tomatoes and similar monstrosities are not what is wanted, either for exhibition or private use. Tomatoes should not be large; on the contrary, about six to a pound is above the right size. Speaking of Tomatoes, I may add that the green fruits gathered in autumn, and laid on shelves under the glass to ripen, certainly become red, but as regards flavour it can only be compared with that of box fruit from our neighbours across the Channel. English Tomatoes fetch from 2s. to 2s. 6d. per lb., while French ones only realise from 1s. to 1s. 6d. Hoe between all growing crops whenever the weather is suitable. Plant double rows of Lettuces on the top of Celery ridges. Keep a sufficient quantity tied up in the winter quarters to meet all de-

mands. Sow successional crops of Turnips, Lettuces, Radishes, Mustard and Cress, &c. Now is a good time to thoroughly clean walks, cut Box hedges, and finish by putting a little gravel on the walks, so that all may be smart and trim for the summer.

THE LATE AURICULA SHOW.

WITH the exception of Mr. Cannell, we see no new southern growers enter into Auricula competitions, and therefore must conclude that growers do not increase; whilst of western and northern growers the same names constantly crop up. It therefore would seem that, charming as the show Auricula is, it will always remain the favoured flower of a few specialists, and will ever become in the fullest sense of the word popular. The richly coloured and finely formed flowers of the alpine seem much more largely to attract public attention than those of the show Auricula proper. More than once I overheard the remark, "The show flowers are no doubt good, but I prefer the alpine for beauty and effect." However, there is room enough for both sections. Judging by the competitions, it seemed that the alpine are in fewer hands than the show flowers. This may be because the old florist yet looks somewhat askance at them. Indeed, had it not been for Mr. Turner and Mr. Douglas, the alpine display at South Kensington the other day would have been but poor. Although ordinarily known as alpine only, and not particularly classified, yet there is a minor division of them into golden centres and white or creamy centres, whilst there is also an obvious distinction not made at the show, but made much of by the northern florists, who divide the alpine into shaded and self flowers, and whose proclivities are entirely in favour of shaded flowers. A good shaded alpine should always have a golden centre—that is almost the crown of glory of any alpine. Then the ground colour must be darkest and clearly defined round the centre, and should shade or pale off into a lighter hue towards the edge, not abruptly, but regularly. Self flowers are easily distinguished by the density of the ground colour; there may be a little shading, but it is indistinct. Probably, however, most persons who are not initiated into the points of alpine Auriculas would prefer the self or unshaded to the shaded flowers if they have a golden centre, the contrast between the golden and dark hues being so clear and pleasing.

For the edification of inquirers I have arranged a list of twenty-four kinds of alpine made at the exhibition of the various sections—golden-centred shaded flowers and golden-centred with self grounds; also shaded and unshaded flowers with white or creamy centres. Probably some of these are new and not yet in commerce, but if obtainable they would make a very fine collection.

Golden-centred selfs.—Fred. Copeland, John Bull, Dr. Denny, Wm. Fowle, Mercury, and Fairy Ring. **Golden-centred shaded.**—King of the Belgians, Superb, Mrs. Micklejohn, Amelia Hardwidge, Sappho, and John Leech, the latter very dark shaded and large. **Creamy or white-centred selfs.**—Charles Darwin, Mentor, J. D. T. Llewellyn, Ethel, Philip Frost, and Florence. **Creamy or white-centred flowers.**—Queen Victoria, George Lightbody, Sensation, Union, Imperial, and Diadem. One marked feature in the golden-centred flowers is that they retain this rich colouring to the last; on the other hand, creamy-centred flowers open with a yellow tint, which generally fades off to white, so that centres of two distinct hues are thus seen on one plant. This is one of the peculiar defects of the creamy-centred section.

The new and singular section of fancy Auriculas calls for little comment, except to deplore that a body established to promote the improvement of the Auricula should encourage the exhibition of such sorry material as the floral abortions are which come under that head. The newer forms of laced varieties are permitted to appear under the heading of fancy flowers, but the permission

is a questionable honour. These laced varieties have in them the forms of much that is promising and beautiful. Duly encouraged and removed from contaminating association with the "fancies," they may make in time a very pleasing section, and become exceedingly popular. Of fairly robust habit, easily reproduced from seed, and not at all difficult to cultivate, they may be grown by anyone who can find a spare frame and a few other necessities. The lacing which should mark the flowers needs fining down, the centres need enlarging and enriching, and the grounds deepening. It should be not the least pleasing feature of this laced section that it is thus open to considerable improvement.

A. D.

The royal parks and pleasure grounds

were the subject of a little free discussion in the House of Commons the other evening. On the motion in Supply to complete the sum of £110,921 for royal parks and pleasure grounds, Mr. Labouchere complained of the cutting down of trees in Kew Gardens, and proposed that the cost of Battersea, Kennington, and Victoria Parks should be transferred from the public treasury to the metropolitan rates. Mr. Ritchie said nothing could be more astounding than such a proposal, for it meant that the parks of the rich might be supported out of the Consolidated Fund, and the parks of the poor were to be supported by the ratepayers. The moneys required were eventually voted.

Beans and Peas for exhibition.—When should Peas, Broad Beans, and Scarlet Runners be sown to show in the first week in September?—S. C.

Worms on lawns.—How can I best get rid of worms on my lawn? I have tried several remedies, but still they are troublesome.—T. E.

Rhubarb wine.—I would feel obliged if any reader of THE GARDEN would give me a good recipe for making Rhubarb wine.—J. H.

Pastebord boxes.—Can anyone inform me if pastebord boxes for packing plants in are to be got in a flat state, prepared for gumming together? and if so, where? They are convenient for carrying in going abroad.—W. H. M.

Emigrating (Gardener).—Try Mr. Peter Henderson, Courtland Street, New York, or Messrs. Ellwanger and Barry, Rochester, New York.

THE FROST running up to 12° has done much damage to Potatoes in this district. Both foliage and bloom have suffered much from the severe and sudden changes that have taken place lately in the weather.—J. E. W., Grange.

Diseased leaves (C. A. C.).—The leaves of your plants have probably been injured to some extent by a small insect nearly allied to the common froghopper; there were no insects on the leaves, but I found two cast skins of the insect alluded to. Examine your plants, and if any small insects larger than green-fly, which jump when disturbed, are present, fumigate well or syringe with some insecticide.—G. S. S.

Books (F. W. M.).—Bullett's "Art of Grafting," price 3s. 6d.; post free, 3s. 10d. Published at this office.

Fruits (J. Ady).—Yes, when the great fruits come; but ordinary fruits people do not care for.

Names of plants.—T. A. F.—1, *Sedum carneum* variegatum; 2, *Fuchsia cordifolia*; 3, *Kalanchoe coccinea*; 4, *Bouvardia Humboldtii*.—A. K.—1, *Oxalis cernua*; 2, *Orchis papilionacea*; 3, *Opheya fusa*.—W. H., *Thorton Heath*.—*Oxalis floribunda*.—K. Grievé.—*Berberis dulcis*.—A. J. H.—*Coronilla Emerus*.—J. Clees.—*Oncidium luridum*; O. bicallosum (the largest flower).—A. K.—*Serapias lingua*; *Staphylea pinnata* (shrub).

By inadvertence we stated in our report of the last week's exhibition that Mr. Noble's nursery was at Ascot; whereas, as is well known, it is Bagshot Nursery, Sunningdale.

COMMUNICATIONS RECEIVED.

W. B. H.—T. E.—T. G. K.—J. B.—J. A.—F. R.—P. R.—D. O.—& Son.—F. G.—O. T.—W. H.—L. K.—G. F. N.—T. R. J.—S. H. & Co.—E. B.—R. P.—T. G.—J. G.—J. S.—W. R.—D. T. B.—G. S.—G. N.—R. G.—W. W.—C. W.—D. J. S.—J. E.—W. E.—D. R.—& Co.—E. A.—J. W.—S. C.—T. D. F.—W. G.—F. J.—G. J.—C. C.—K. G.—A. H.—J. V. D. Sons.—J. G.—J. C.—P. W.—W. J. M.—F. J. G.—G. C.—T. S. W.—G. B.—C. D.—F. T. G.—N. H.—W. W.—T. F. R.—F. A. S.—H. P.—Dr. F.—C. M. O.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

HEREFORDSHIRE ORCHARDS.

Mr. Groom is quite correct as to the prices of Apples obtainable during the past season, for in this part of Herefordshire plenty of Blenheim Orange, the principal variety grown for sale, could be bought for 8s. per cwt. We had a quantity of ordinary cooking varieties that were not saleable at any price sufficiently remunerative to pay for the extra care and trouble needed in gathering for the market, so they were mixed with the cider fruit. It is a question if making cider does not pay better than marketing the fruit, unless the varieties are very good, for the expenses of gathering are light compared with hand-picking for market, and, as a rule cider Apples are better bearers. The Blenheim Orange is not a good bearer when young, and will frequently miss a season altogether. We have three Ribston Pippins in an orchard with heads 30 ft. through. In the year 1875 we gathered 6 cwt. on an average from each tree, but we have had none since. I give below the result of making the produce of thirteen acres into cider, and leave your readers to judge if it does not pay. I may mention that the fruit is very ordinary, and the cider only of poor quality, but there is always a ready sale for it at 6d. per gallon. Of the thirteen acres of orchard ground, one-half is grass and the other tillage; the trees are 36 ft. apart, with many gaps among them; in fact, this year it took sixty-seven trees to fill the vacant spaces. We made 2600 gallons of cider, which, at 6d. per gallon, is £69, or £5 per acre. The expenses amounted to 5s. per hoghead of 100 gallons, which included gathering and everything connected with making the cider ready for use or sale, except the horse for grinding, so that it leaves a profit of £4 10s. per acre, and the Grass under the trees is worth as much as any other, coming early in the spring and consequently useful for ewes and lambs. Another orchard, four acres in extent, in which the trees are only 18 ft. apart (so thick that it is difficult to rear a ladder amongst them) produced 2300 gallons of cider, which, after deducting the expenses of making, leaves £12 18s. 9d. per acre as profit. The above is the exact cost, for it was let to a man to make for the price mentioned; but 5s. per hoghead is too small a price for making; 7s. would be nearer the actual cost, including horse and everything. There are other expenses, such as depreciation of casks, &c., but after that there is a good profit left. Of course good fruit grown on good, strong land will make much superior cider, worth 1s. per gallon; but our fruit is of poor quality.

I have come to the conclusion that orchards planted thickly are better and more productive than when further apart. The trees afford each other shelter from the wind, and invariably produce a greater quantity of fruit per acre. We planted an orchard of seven acres last autumn. The trees, consisting of about twenty varieties, were placed 25 ft. apart; one-fourth of them were Worcester Pearmain, and the remainder of the most popular sorts. Our method of planting and protecting is as follows: We set out the first line on the square, then drive in a Larch stake for each tree, leaving it about 6 ft. above the ground. These stakes are previously prepared by having the ends that go into the soil plunged up to

above the ground level in a large heap of quicklime to harden them. The stakes are of nine years' growth, thinnings out of Larch plantations, and 2½ in. in diameter at the top. We then dig the holes ready for the trees and plant them to the stakes—a much better plan than driving the stakes in afterwards; then we fasten them with tar twine, using twisted haybands to keep the ties from cutting the trees; 3 ft. of wire netting, 3 ft. high, are now put round the trees and fixed with wire staples to the stakes to protect the trees from hares and rabbits. Two additional small stakes would protect them from sheep, but we have planted Gooseberries 5 ft. apart each way, so that no sheep or cattle will be near the trees for some years.

The last few years has witnessed a great improvement in this county in the way of filling up old orchards and planting new ones, the impetus given being in a great measure through the efforts made by the Woolhope Club to encourage the growth of better varieties both of Apples and Pears. Its annual exhibition held at Hereford enlightened growers of Apples to a great extent as to what varieties to grow. There are, perhaps, more bad sorts grown here than in any other county in England, although according to returns there are 25,000 acres of orcharding. Previous to the Woolhope Club taking up the matter, many owners of orchards had no idea of such varieties of Apples as Cellini Echlinville Seedling, Lord Suffield, Peasgood's Nonsuch, Lodington, Warner's King, Worcester Pearmain, Yorkshire Beauty, and others. Blenheim Orange is the kind most largely grown of any really good Apple here; of course there are some who grow, as is well known, all the best varieties in the best style, but the Woolhope Club has popularised the culture of the best kinds to a great extent by bringing the specimens of such growers before the public at their exhibitions.

The methods of planting and protecting need improvement. One old plan prevailing here is to buy and plant Crab stocks, let them grow for a year or two, and then graft them. A much better way is to buy good, clean, healthy young trees from the nursery, as they are properly worked, and in that case there is no danger of grafts being blown off; moreover, they are no dearer than Crab stocks, reckoning the cost of grafting and the loss of time. One of the main points should be to grow the trees on as quickly as possible out of the way of cattle before the protecting materials have rotted, for cattle often injure them before the protection is replaced. One of the most common methods of protection is Thorns or Gorse bound around the trees, but such protections only last about two years. A better plan probably would be Oak pales bound together with hoop iron, or slabs from the saw-mill would do very well; but perhaps scarcely 75 per cent. of the trees planted in old orchards ever get established from one cause or another. In the case of new orchards, if possible, it is always best to have proper protections for the trees.

Bryngwyn, Hereford.

W. NASH.

Daphne Cneorum.—One of the sweetest and most showy hardy plants now in bloom is this Daphne, which on account of its procumbent spreading character is well adapted for banks or rockwork, or other elevated positions; when so planted and grown it runs about, droops over rocks, and seems to be quite at home. Many appear to have a difficulty in managing this Daphne, but with us it grows freely in light, sandy soil, and by layering the branches they root after being buried a year or so, and may be taken off in the spring. So floriferous are the plants here, that the tips of every shoot bloom; and as they cover a large space,

they are a mass of gay blossoms. I shall be glad to hear if anyone has tried this Daphne in pots for forcing, and how it behaves under glass. As it flowers naturally in April, it would appear to be valuable for starting early for cutting and working up in bouquets.—S. D.

TREES AND SHRUBS AT GRASMERE.

Mr. STEVENS' interesting garden at Grasmere, near Byfield, from which we have received so many specimens of hardy plants of all kinds, is now most attractive, at least so far as regards trees and shrubs, which abound here in wonderful variety; for, after having collected every comestable plant of a herbaceous character, Mr. Stevens has of recent years set about enriching his garden with trees and shrubs, the result being that it contains by far the most representative collection that we know of in any private garden, and can only be compared with that of Mons. Alphonse Lavallée, whose arboretum at Segrez (Seine-et-Oise) is considered to be one of the most complete in Europe. There are few classes of plants from which an amateur can derive so much pleasure as from a good collection of flowering trees and shrubs, particularly if it embodies, as Mr. Stevens' does, not only the typical species, but as far as possible every variation from it, and it is surprising what variety there is among them; for example, one would scarcely credit that the named varieties of the Lilac number a score or more, and so with the majority of the genera. Individual specimens are for the most part small compared with what they will become in the course of a few years. When we take into account the size of the Grasmere garden, the number of species and varieties which it contains is marvellous; between 10,000 and 11,000 are represented, but we will confine our remarks to the most prominent at the present time.

LILACS.—As has just been remarked, the varieties of these are numerous, but only about half of the number that have been named can lay claim to distinctness, the shades of colour, the chief distinguishing character in many of the kinds, being remarkably alike. The majority belong to the common Lilac (*Syringa vulgaris*), and it is a remarkable fact that there are comparatively few varieties of the Persian Lilac (*S. persica*). One of the very finest varieties in flower is called Prince Camille de Rohan, a kind which stands out prominently from all the rest on account of its dense panicles of blossom, which in the bud stage are a deep rosy-crimson, but lighter in the expanded state. A similar, but not such a fine sort is one called *sinensis rubra*, and next in merit is Professor E. Stockart. *Rosea grandiflora* is a very fine variety, which has exceptionally fine panicles, lighter in colour than those of either of the kinds named, but very pleasing. The foregoing comprise some of the most distinct of the dark coloured varieties. Among those that are but little different from the type of *S. vulgaris* are those named Goliath, purpurea, rubra, cœrulea, and media. The major variety called also Charles the Tenth is well known. It is an excellent kind for forcing, and should be included among the best of the dark varieties, as should also the double flowered sort, which possesses the advantage of remaining in flower longer than the rest. The best of the pure whites is Ville de Troyes, which is much superior to the common white (*S. vulgaris alba*), having larger flowers and denser panicles. Another called Jacques Callot is but little different from Ville de Troyes. The most noteworthy varieties of the Persian Lilac are the white (*alba*), now becoming a scarce plant, even in the best nurseries, and the cut-leaved variety (*laciniata*), an elegant shrubby

also pteridifolia. The Rouen Lilac (*S. rothamagensis*) is an extremely pretty shrub that deserves to be better known than it is. It differs from the Persian in being neater and more compact in growth, and in having narrower leaves. We found it here under its synonym *S. dubia*. There are a few varieties of it, the white (*alba*) sanguinea and Gloire de Moulins being the most remarkable. Among other distinct species *S. Josikea*, a Hungarian Lilac, will shortly be in bloom, and later on the Himalayan *S. Emodi*, also very distinct from any of the commoner Lilacs.

BARBERIES AND OTHER SHRUBS.—Amongst Barberies now in flower were the popular, but very beautiful, *Darwini*, *stenophylla*, *dulcis*, *cratægina*, *Fortunei*, *buxifolia*, *Jamsei*, *Wallichiana*, and several varieties of the common *B. vulgaris*. These all have yellow blossoms, borne more or less profusely, but the most uncommon and distinct is *B. Hookeri*, which, in the shape of a dense bush of shining evergreen foliage, produces along the undersides of the branches numerous golden-yellow blossoms. *Pyrus*, *Prunus*, and *Cerasus*, genera largely represented, were for the most part past their best; but such beautiful kinds as *P. Malus floribunda* and *spectabilis* show how gay they have been. In *P. Toringo* we have a charming companion for the common *P. spectabilis*, and being in full bloom it prolongs the flowering season some weeks. It appears to be intermediate between *P. spectabilis* and *floribunda*, having the graceful growth and profusion of bloom of the latter with larger flowers. *P. Maulei* is in perfection, and seldom have we seen such a glowing sight as that presented by a hedge of this shrub a hundred yards or more in length, every portion of it being wreathed with orange-scarlet blossoms, which later on will be succeeded by brightly coloured fruits. *Cerasus Watereriana* is a very beautiful tree when profusely hung with its bluish-tinted rosette-like blossoms, as is also *C. Caproniana* multiplex, here called by its synonym *ranunculiflora*. Several varieties of *C. Avium* and *avestris*, both single and double, though all beautiful, call for no special mention. *Prunus triloba* has been extremely showy this season, and a white flowered variety of it is a very fine shrub, which differs in no way from the type, except in the flowers being white.

GENISTA HISPANICA is one of the showiest shrubs in the garden—a veritable mass of yellow. It grows about 2 ft. high, and forms dense rounded bushes, which succeed in any soil. *G. præcox*, likewise a mass of bloom, but of a pale yellow colour, is also a remarkable shrub. It remains long in blossom, and emits a strong and pleasant perfume. It would be a good shrub for planting near an apiary, for bees seem to be very fond of it.

CYTISUS PURPUREUS is a dwarf prostrate shrub with long wiry shoots, proceeding from trailing underground stems, and wreathed with purple blossoms in the type, but with pure white flowers in the variety called *albus*. Both are admirable rock garden shrubs, as they never grow tall, and they do well in any soil. *C. ratisbonensis*, considered as a variety of *C. purpureus*, has yellow flowers produced numerous on long shoots, and is highly attractive. *C. albus* and its varieties are likewise remarkable for their profuse bloom and the long time during which they keep in perfection.

VIBURNUM FLICATUM, one of the finest of the genus, is represented by a large bush, which in a short time will be a mass of white, so numerous are its flower-heads. On account of the texture of the sterile flowers they last in good condition for an incredibly long time, but not so the typical species, which has fertile flowers.

The Wayfaring tree, *V. Lantana*, is really a fine shrub when seen in the perfection in which it is to be found here, the broad corymbs of white bloom being very attractive.

LONICERA TATARICA is represented by several varieties, two of which are particularly noteworthy. One, *virginialis alba*, has pure white blossoms very distinct from those of the ordinary white-flowered form of the Tartarian Honey-suckle; the other, called *rubra grandiflora*, has deep purple-red blossoms, which, being numerous, make a fine display.

In the course of a week or so the shrub garden will be gay with the numerous varieties of *Weigela*, *Rubus*, *Helianthemum*, *Philadelphus*, and genera of a similar showy character, in fact, from early spring till late in autumn such a collection as this is more or less attractive.

EDITOR'S TABLE.

STEPHANOTIS PIGMIES.—We were greatly surprised at getting little 2-in. pots of this from Mr. Crowe, with a strong truss of bloom on each, a mere cutting with two leaves or three, well rooted, and growing into a sturdy truss of bloom instead of sending up the shoot of green which will come by-and-by. Mr. Crowe states that when these cuttings were put in, there was no sign of flower, but the wood was well ripened, and when that is so, it is as sure to produce flowers as a well ripened Hyacinth bulb.

IXIOLIRION MONTANUM.—One of the brightest flowers we have received lately is this, from the New Plant & Bulb Company, Colchester, and, judging by the specimens sent, it must be grown there to perfection. The slender stems are 2 ft. high, and bear a dense cluster of bright bluish purple flowers, both large and showy. It is excellent for cutting, and, being so graceful in growth, is well suited for vases. Like all bulbous plants of a similar character, it requires a light, warm soil to develop finely.

THE FIRE BUSH (*Embothrium coccineum*).—From Mr. S. Randall's nursery, at Exe Bridge, Exeter, comes a splendid flowering branch of this brilliant tree, which thrives so well in the genial climate of Devonshire, but which in the neighbourhood of London requires the protection of a wall, and then rarely attains perfection. It was figured in *THE GARDEN* some six years ago, though the colour of Mr. Randall's specimen is much finer than that in our plate. Another species of *Embothrium* has recently been introduced through Messrs. Henderson, in whose nursery at Maida Vale we saw plants of it the other day. It differs entirely from *E. coccineum* in foliage, the leaves being larger and not glaucous, and it is said to even surpass the Fire bush in the beauty of its flowers.

CYPRIPIEDUM MONTANUM is a pretty little hardy Lady's Slipper from the mountains of California. Its blossoms are smaller than those of any of the other hardy kinds; the sepals are of a chocolate-brown colour, the side ones being singularly twisted. The most conspicuous part of the flower is the pouch-like labellum, about the size of and much resembling in form a sparrow's egg. It is pure white, streaked with purple, while the staminate which dips into the pouch is bright yellow spotted with brown, a strange combination of colour. The flowers are borne three and four on a slender stalk, rising 1 ft. or more high. It is the same as *C. occidentale*. Some fine specimens of it come from the Hale Farm Nursery, Tottenham; like-

wise from the New Bulb and Plant Company, Colchester.

JAPANESE MAPLES.—It would be difficult to name another class of shrubs that combine so much elegance of growth with such brightness of colour in their foliage. Some cuttings of them from the New Plant and Bulb Company, Colchester, show well their beautiful and varied forms and their delicate and rich hues. In about a dozen varieties sent there is a deal of variation, some leaves in *Acer dissectum* being very finely cut, others, such as in *japonicum*, being only lobed. In colour, too, they vary from the deep blood-red hue of *atrosanguineum* to a pale pea-green tint. Such elegant shrubs as these are a real gain to our gardens, as most of them are hardy, at least in the south of England.

CANTUA DEPENDENS.—Some glorious flowering sprays of this Peruvian shrub reaches us from Bryngwyn, Hereford, where, Mr. W. Nash informs us, it is growing against a pillar some 15 ft. high in the conservatory. It is planted out in a border of ordinary loam. He adds that it flowers freely in an ordinary greenhouse temperature in a position where it can get plenty of light. It has been in flower for a month, and will continue so for another month. Mr. Nash has never experienced any difficulty in flowering it in pots, but, in order to see its beauty to perfection, it should be planted against a support, such as a pillar, or depending from the roof. It is a plant which, so grown, really deserves the (as applied to flowers) too hackneyed term, magnificent.

MAY TULIPS.—A gathering of Tulips from Capt. Patton's garden, at Alpha House, Regent's Park, shows well what may be done even in a London garden, most of the flowers being as good as those from the country, the whites mainly showing indications of the impurities of the atmosphere. They consist chiefly of forms of the late flowering *T. Gesneriana*, among which there is such a wide variation in colour laid on the petals in the quaintest way possible. There is a good deal of unpleasant colour and hideous form among double Tulips closely examined. No doubt some of this is owing to their running back, but some to the selection by raisers of things with no claim to beauty. Of colour or form, with few exceptions, the single Tulips are far before the doubles, and we look to their greatly increased use as soon as their endurance and beauty in the cut state are well known.

SINGLE PYRETHRUMS.—As in the case of single Dahlias, there seems to be a growing taste for single-flowered Pyrethrums in preference to double kinds, and well they deserve it, combining, as they do, brightness of colour with, in a striking degree, elegance of form. A bunch from Mr. Ware gathered from the open border is very charming, there being every variation in colour from white to the richest crimson. In a cut state they last well in water, and the clear colours of the flower are brought out brightly by artificial light. Some call them coloured Marguerites. With them came a bunch of a charming Clove Pink, one of the finest sorts we know of, the colour being a bright rose-pink. The exquisite fringing of the petals adds much to their beauty. This sort has been in flower in the open border throughout the past winter.

WHITE ANEMONES.—Pure white Anemones coming to us wrapped in cotton wool as usual, and thereby losing half their juices and beauty, are varieties really worth attention of the old

Poppy Anemone; they are a good white with the stamens cream coloured, and are certainly flowers which anybody would be proud to have, both form and colour being so good. These come to us from Mons. Van Velsen, of Haarlem, and we are very much obliged to him for them. They justify curiously enough what we said last week about the need of finding out and increasing the good races of all sorts of beautiful flowers like this. This fine white Anemone would have uses in the hands of an intelligent man quite distinct from the various coloured kinds we know of. Although Mons. Van Velsen put a bit of cotton wool inside these noble flowers, as well as bedding them in it, still they came very well, and we hope some day to see a good bed or two of them in this country. We trust he will increase them, and not seek to make this really fine single variety double.

FLOWER GARDEN.

TROPEOLUM TOWNSONI.

I CAN fully endorse all that was stated in THE GARDEN a few weeks ago with respect to the beauty and usefulness of T. Townsoni as a winter-blooming variety in a greenhouse. I have cut thousands of its brilliant crimson flowers all through the past winter from a plant struck in the autumn, and now in a 9-in. pot. I do not know a flower to compare with it in colour and general utility for bouquets and table decoration. But I would especially draw attention to its qualities as a bedder. I had a large oval bed planted as the raiser suggested, viz., by taking out the soil and filling the space with sand, in which I plunged the cutting pots, and as they grew I pegged their shoots down, pinching out the leading growth; by July they were a mass of glowing crimson, scarcely a leaf being visible, and so they continued until the frost came and robbed me of my prize, which had been the admiration of visitors and a source of pleasure to myself. I cannot speak too highly of this Tropæolum, and would recommend every one having a greenhouse to grow it for winter blooming. If planted in rich soil it grows very rapidly, covering a large space quickly, but it does not flower so well as when its roots are confined. It is very lovely grown in combination with another fine species, Canariense Improved. I am told Mr. Townson has raised a dwarf variety of this Tropæolum which blooms equally well, and which will be a good addition to our bedding plants. J. W.

The Mayflower (*Epigæa repens*).—In your issue of the 1st inst. you say you think that *Epigæa repens* is in flower earlier in England than in New England. All I can say is that it is in flower much earlier with you than with us in Nova Scotia. The Mayflower, or E. repens, is the emblem of Nova Scotia, with the motto, "We bloom amid the snow." This is literally the case this season, for the snow is still from 2 ft. to 3 ft. deep in our woods, and the ice is not yet all melted on our streets. The Mayflower will not be in general bloom here for about a fortnight yet.—PETER JACK, Halifax, April 29.

Seedling Primrose (*A. K. O.*).—The Polyanthus Primrose sent is an undoubtedly novel form of the ancient Jack-in-the-Green. We have seen numerous seedling forms in red and similar hues, very fine flowers, and having the abnormally green calyx. Yours is of a sulphur or pale primrose colour, and of good form and of great size. The chief objection to this section of the Polyanthus as decorative plants is that when the flowers die away they leave exposed the large green calyx, which is curious, but not beautiful, whilst in the common forms of the Polyanthus and Primrose when one flower decays another pushes in and takes its place.

Pink Wood Sorrel.—Another locality for this pretty British plant is in the lake district

at the east end of Ullswater, where I found it plentifully several years ago in a wood near Pooley Bridge. There is no doubt about its being a variety of the common *Oxalis Acetosella*, but one which is fortunately constant, and so far as my experience goes, it shows no inclination to revert to the ordinary type, and is worthy of a place in every collection. I once saw it described in a work on botany, the name of which I forget, as *Oxalis Acetosella rosea*, and as being a variety of the common Wood Sorrel.—J. M. BURTON, Highfield, Gainsborough.

Carex pendula variegata.—I send you a leaf of a fine British plant found by me last year in Bitholmes Wood. It is uniformly marked, as in the leaf sent, and, being evergreen, will be a welcome addition to cold greenhouse plants or the bog garden. In the same wood I have this year found a pure white variegated variety of *Luzula sylvatica* and *Melica uniflora argentea*, a larger variety than the one in the nursery trade, but in other respects similar.—J. ELLIOTT.

Perennial white and red Candytufts.—Of these the first is *Iberis corifolia*, obtained some time ago from Mr. Cannell, Swanley, and for cutting or decorative purposes, or for contrast in beds, I know of no pure white perennial during the spring months to compare with it; indeed, outdoor white flowers at that time are by no means plentiful. At present here it is finely contrasted in one bed with *Rex Rubrorum* Tulips and *Iris reticulata*, and in another with *Pansies* in the centre and an edging of *Alpine Auriculas*. For this purpose it should be kept dwarf by yearly propagation from cuttings. The red or crimson variety is exceedingly rare, so far as I know, and not to be found in the usual catalogues of perennials. I do not mean *I. gibraltaria*, which is a tinged white. It is very difficult to propagate.—W. J. M. Clonmel.

Scilla bifolia.—Referring to the note on this plant in THE GARDEN (p. 211), we beg to observe that we have always regarded *Squills* in general with particular favour, and have collected an assortment of *Scilla bifolia*, which was offered in our catalogue in 1872. The varieties mentioned in the catalogue in question, of which we regret to say we have no copies left, are *S. bifolia* and its varieties *alba*, *atro-cerulea*, *carnea*, *cerulea*, *compacta*, *grandiflora*, *pallida* *grandiflora*, *maxima*, *metallica*, *nivalis*, *pallida* *rosea*, *rosea* *præcox*, *major*, and *virescens*. These *Squills* are rather difficult to grow, and at present some of the varieties just named are scarce. Our *metallica* is described as a very fine and distinct variety, flowering in March. The flowers are of a fine blue with darker shades and a beautiful metallic sheen.—E. H. KRELAGE & SON, Haarlem.

Eremurus Olgae.—The plant described under the above name in your last issue (p. 307) cannot, I think, be really this variety, but is probably either *E. tauricus* or *E. spectabilis*, as Max Leichtlin, of Baden-Baden (who may be considered as the introducer of these plants into Europe) informed me when first he received this variety from Dr. Regel, of St. Petersburg, that it was one of the handsomest and most conspicuous flowered of its family, which the plant you describe certainly does not seem to be. I am more confirmed in my opinion as above stated, from the plant in question being at the Hale Farm Nurseries, where I was informed when last there that their stock of *Eremurus* had by some accident got mixed, so that they were unable to tell me the name of one of the varieties then in flower.—W. E. G.

SHORT NOTES—FLOWER.

Pansies (H. H.).—The blackest *Pansy* we have seen, and with preserving on that account alone; otherwise of no particular merit.

Cinerarias (F. & A. Smith, Dulwich).—As regards form, colour, and substance, the flowers you send are all that could be desired, especially having regard to the late date at which the plants are flowering.

NOTES OF THE WEEK.

BRODLEA HOWELLI.—A delicate and elegant Californian bulb, bearing the above name, comes to us from the New Plant Company at Colchester. We think that when well grown it will be a very pretty plant.

CYPRIPEDIUM MACRANTHUM.—This hardy Orchid comes to us from the New Plant Company. We hope they may succeed in making it better known and more generally grown in this country than it is at present.

GLOXINIAS.—From Mr. F. Gibb-r, Fitcham Rectory, Leatherhead, come some large and fine blooms from two-year-old seedling *Gloxinias*. Each plant is stated to be now carrying from thirty to forty flowers, and some of the leaves measure 9½ in. long and 7 in. broad, although not fed with manure, or otherwise treated out of the ordinary way.

We learn that the floral decorations at Chingford Station on the occasion of the visit of the Queen to Epping Forest were done by Messrs. Paul & Son, The Old Nurseries, Cheshunt. The tree planted at High Beech in commemoration of Her Majesty's visit was a specimen of the Scarlet Oak (*Quercus coccinea*), from the nurseries of Messrs. William Paul & Son, of Waltham Cross.

ARISTOLOCHIA GOLDIEANA.—This wonderful African plant is now in flower in the Victoria Regia house at Kew. Its blossoms are larger than those produced on the same plant two years ago, the dimensions being 1½ ft. from tip to tip of the tail-like appendages. The bell-shaped perianth is 1 ft. in depth. This, which is one of the largest flowered plants known, is worthy of a visit to Kew to see.

ANEMONE PALMATA ALBA.—We do not know that we have seen anything more interesting or beautiful than this wind flower, as sent to us by the New Plant Company. It is called *alba*, but it really has a delicate tinge of straw colour in it that makes it charming. It would make the Daisy-loving people quite happy to see the way in which it opens in a room; leaves and flowers and buds and all are good when the plant is well grown.

ADIANTUM PALMATUM.—A very fine specimen of this handsome Fern appeared in a collection of plants shown at Manchester on the 2nd inst. by Mr. George Smith, gardener to J. Rylands, Esq., of Streiford. It was admirably grown and in the best possible condition. It is a striking species, distinct in character, and very handsome. It was the central figure in a well-grown group of miscellaneous plants.—R. D.

AMONG HARDY FLOWERS from the Eastcott Cottage garden come the white *Camassia* (*C. Leichtlini*), with greenish-white blossoms, not nearly so showy as the blue *Quamash*, which, however, does not flower till later; *Iris Sisyriochium*, a little gem with violet-purple flowers having a pure white centre; the Welsh Poppy (*Meconopsis cambrica*), which attains rank growth apparently with Mr. Kingsmill; and the charming little alpine *Toadflax* (*Linaria alpina*) with its rich contrast of colours, orange-red and deep purple.

LONG-SPURRED VIOLET (*Viola rostrata*).—This modest little North American flower comes from Mr. Kingsmill's garden at Eastcott. It is distinct from any other *Violet* we know on account of the long spur, which projects from behind the flower fully ½ in. The colour is a pale violet, beautifully pencilled towards the centre with a deeper tint. It is rare in gardens, and Asa Gray states in his North American

plant book that it is a rare native. It grows on the shaded hillsides over a wide tract of country.

VARIATED HAWTHORN.—Among the many things we regret to see nurserymen sending out variegated forms of is the common Hawthorn, which of all trees perhaps is least in want of that alteration. The variegation of this, like the variegation of many other trees, leads to disease one way or the other, and therefore we the more willingly say that a specimen of variegated Hawthorn in flower brought us by Mr. Stevens, of Byfleet, strikes us as being very beautiful owing to the curious harmony between the variegation and the colour of the flowers.

TREE PEONIES.—A series of these seen in Covent Garden during the week were the most striking things imaginable. Large in size, fine in colour, and perhaps finest of all in their noble, unbroken forms, they seemed to come from some better world of flowers. They were grown near Paris, at Chateau, and sent to Messrs. Hooper, who showed them in their window. On high ground where frost does not bite hard they do well with us, and nothing better repays attention. Few would believe the splendid variety of form and colour that exists among them without seeing some such collection as we now allude to.

CLIANTHEUS DAMPIERI.—This showy New Holland plant, generally considered so difficult to cultivate, is very successfully grown at Messrs. Carter & Co.'s nursery at Perry Hill, where it is one of the most attractive plants now in flower. A fine specimen of it in a huge pot, and with its branches trained to a trellis, is laden with numerous clusters of brilliant flowers, brighter even than we have hitherto seen them. This plant is evidently well understood at this nursery, as the stock of healthy plants testify. It will be remembered that Messrs. Carter gave an account of how their plants were treated at the time when a coloured plate of this *Clianthus* was given in *THE GARDEN* last year.

GARDEN APPLIANCES.—An exhibition of these is to take place at the Agricultural Hall, beginning on July 24, and ending August 5. It is expected to represent every requisite in connection with the garden, such as glass structures of all kinds, heating apparatuses, garden statuary and fountains, Fern cases, aquaria, window boxes, vases, flower-pots, and fancy tiles, rockeries and waterfalls, summer-houses, garden seats and furniture of all kinds; also lawn mowers, engines, gardening tools, wire netting, dried flowers, Grasses, artificial plants, flowers, and fruits, seeds, bulbs, roots, plants, and cut bloom, manures, insect destroyers, &c. Regulations and conditions connected with this exhibition can be obtained from the manager, Mr. J. H. Raffety, at the Hall.

WEST BRIGHTON GEM PELARGONIUM.—For brilliancy of colour, fine habit, and extreme freedom of flowering, this new claimant to public favour surpasses any other variety with which we are acquainted. Even the well known and popular *Vesuvius* must pale before it, though the new variety bears some resemblance to it. We have rarely seen such brilliant colour as that represented by some hundreds of plants in flower of this zonal *Pelargonium* in one of the houses in Messrs. Laing & Co.'s nursery at Forest Hill, where it is a great favourite, supplanting all others of the same type. It is extremely valuable for cutting, and as a conservatory plant it has few equals. Both truss and flowers are large, and the colour a vivid vermilion-scarlet.

THE HABROTHAMNUS IN IRELAND.—As you mention in your last issue having received

blooming specimens of *H. fasciculatus* from a Ryde garden, flowered in the open air, I may mention that this very handsome shrub has been for the last fortnight in full bloom on the outside of my kitchen garden wall, having only had the slight protection of a Cocoa-nut fibre mat hung over it on frosty nights during the past winter. Two other varieties of this family, *H. Newelli*, with dark claret-coloured flowers, and *H. corymbiflorus*, deep rose colour, are also coming into bloom on either side of the first named on the same wall. The last named variety is by far the hardiest of the three, not requiring any protection, and is also a most abundant bloomer, though the individual flowers are not so large as those of *H. fasciculatus*.—W. E. G., *Belgrave, Queenstown, Co. Cork.*

LILY OF THE VALLEY.—Amongst the vast quantities of flowers now brought from France one sees thick bunches of Lily of the Valley with poor little yellow flowers looking somewhat like yellow seeds, so small are they. This lovely plant, which all admire, should be grown well by our own market gardeners and others, like Messrs. Hawkins and Bennett, of Twickenham, to whose fine bunches we alluded last week. We might have said by the way that their specimens were well figured (life size) in the last volume of *THE GARDEN* (p. 565), to which, if our readers will refer, they will get some idea of what the Lily of the Valley is when fairly grown.

TREE CARNATIONS.—We were charmed to see some of these from Mr. Charles Turner, at the Botanic the other day, they looked so large and full of fine colour, particularly one called *Rufus*. It is well to know that such flowers, that all like for their scent, form, and associations, may be had so well early in the year before we begin to enjoy our Cloves and Carnations out-of-doors. Dwarf as well as tall specimens may be grown with ease in pots. Of the dwarfs, Mr. Crowe, Boleyn Nursery, Upton, Essex, sends us specimens full of buds and blossoms. Vulcan, he says, is one of the best winter flowering varieties, and produces fair sized flowers; *Fusilier* has blossoms a little inferior as regards quality, but for freedom in the way of flowering and habit it is one of the best.

SAXIFRAGA PURPURASCENS.—This beautiful Saxifrage, at present in bloom in the rock garden here, is most attractive and distinct. It belongs to the *Megasea* section, and produces its flowers in pendent masses, both calyx and corolla being alike as to colour, a lovely combination of red and purple. The leaves are considerably smaller than those of any of the other varieties of *Megasea*; they are broadly ovate, perfectly glabrous and shining, with a smooth margin, neatly edged with red, as is also the mid-rib. It is a native of Sikkim, where it grows at an altitude of from 12,000 ft. to 14,000 ft. Though by no means a rapid grower, it possesses a vigorous constitution, and is perfectly hardy. When in flower it reaches a height of from 10 in. to 12 in.—DAVID A. KING, *Fettes Mount, Lasswade.*

PLANTS AT COLCHESTER.—The winds last week sadly disfigured many plants out-of-doors, spoiling the flowers and bruising the foliage. However, I send you to-day a flower of *Cypripedium macranthum* from a plant badly knocked about, the stem and foliage being so brittle; also two varieties of *Dodecatheon*. These "Shooting Stars," as they are called, are very effective. Brodiaea *Howelli* I cannot say much for; I have had bad bulbs to commence with, and until next year I will not have a good sample of flower. Two forms of *Iris iberica*—superior to the ordinary form, and which we grow separately—you will, we think, admire.

There is no difficulty in growing any form of this *Iris* or *Iris Van Houttei* if people will select a spot for them fully exposed to the sun, and give them plenty of sandy grit. You see how easily we do them—not one year alone, but every year. I feel sure that I could plant them in any part of the country and that they would succeed well. The great point, as I have said, is a suitable sunny situation and plenty of gravelly soil (gritty) about the roots. I once tried to grow some in a slightly shaded place (very slight shade), but never succeeded in getting a flower.—F. HORSMAN.

GLOXINIAS AT EDINBURGH.—Gloxinias are grown to great perfection in the Lawson Nurseries, some of the leaves measuring from 7 in. to 9 in. across. Amongst the prettiest kinds are *Francisca Honemann*, pure white, and *Bangholm Beauty*, deep purple, throat spotted at the base, and the rim pale lavender. Both these kinds were raised here, as were also three fine red varieties, viz., *William Ross*, *Mrs. Wills*, and *Marquis of Lorne*, purple veined with red, and *James DREWITT*; all except the last are erect flowers.—C. M. O.

HESPERALOE YUCCAFOLIA.—We first saw this remarkable new North American plant in flower in July last at the Hale Farm Nursery, Tottenham, and we noticed the other day that the same plant (the same flower-spike, in fact), was still producing crowds of its small orange-red blossoms. The plant has, therefore, been in continuous bloom since July last, and the spike promises to produce flowers for another month or more. It may, therefore, be aptly called an all-the-year-round flowering plant. It belongs to the *Liliaceae*, and in its habit of growth and rigid foliage much resembles some of the *Yuccas*. The flower-spike proceeds from the centre of a tuft of erect leaves, and is some 3 ft. or 4 ft. in length and slender. The flowers, which are borne in clusters at short intervals along the upper part of the stem, appear to be numerous produced in succession from the same point, a circumstance which accounts for the extraordinary length of time during which the plant remains in bloom. It is really an interesting plant, particularly to a botanist, though it cannot be termed very attractive—at least, judging by the solitary example we have seen of it.

BROOM AND FURZE.—When I was at Milne Graden, near Coldstream, the other day, I saw in the grounds there a number of beautiful bushes of three different kinds of Broom, growing on a steep bank by the side of the Tweed. The slope of the bank was to the south, and the bushes seemed to have been greatly benefited by the full exposure to the sun, for they were completely covered with flowers, so much so, that none of their leaves could be seen. I observed several fine bushes of the double flowering *Whin* (*Furze*) amongst the Broom, and the deep golden-yellow of the *Whin* contrasted beautifully with the light colours of the Broom. Amongst the Broom and *Whin* bushes several beautiful varieties of *Cowslip* were flowering in large clumps, and there were also to be seen here and there the blue wood *Forget-me-not* and the evergreen *Alkanet*. Mr. Milne Home (the proprietor of Milne Graden) displays great taste in the arrangement of his grounds. In them are to be seen many rare and beautiful flowering shrubs and trees which he has planted. I send to you with this flowering branches of the different sorts of Broom which I saw, as well as a sprig of the double *Whin*. Kindly give me the name of the light yellow Broom.—G. MURHEAD. [With this came the common and white Broom and double *Furze*, the latter beautifully in flower; the one the name of which is requested is *Genista præcox*.]

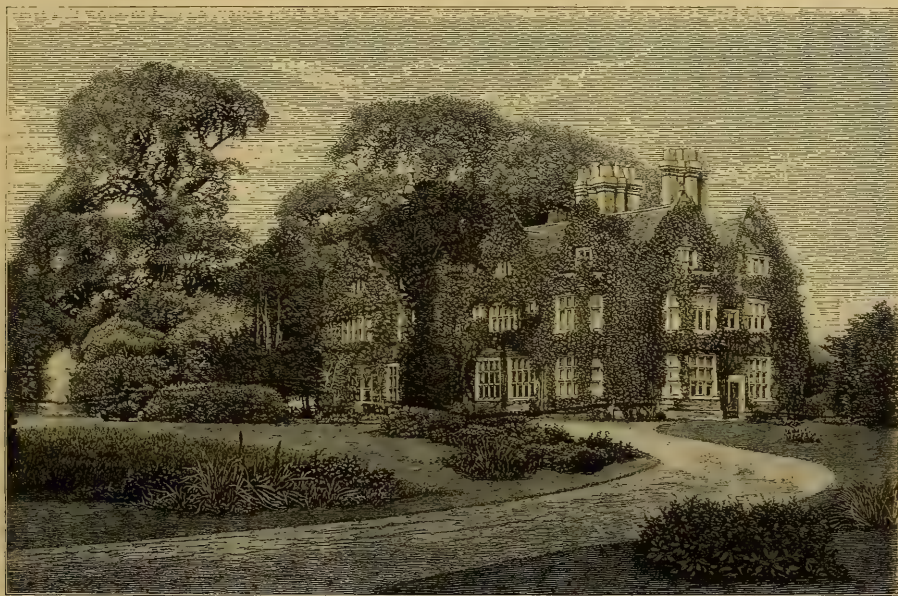
COUNTRY SEATS AND GARDENS.

PENDELL COURT.

NEAR the quiet old Surrey village of Bletchingley is Pendell Court, Sir George Macleay's beautiful residence, situated in the midst of one of the most charming gardens that it has been our good fortune to see—a garden that one cannot help admiring for its simple beauty and for the wealth of varied plant life which it contains. Here one finds no costly terraces, but a grand old house, embowered in perpetual greenery, rising direct from the pleasant lawn, which slopes gradually down to the edge of a small, but cleverly-formed lake. No intricate parterre cuts up the turf into plots; on the contrary, there

best use made of hardy vegetation, especially that of a herbaceous character, and the wants of the plants being thoroughly well known they are placed under conditions most conducive to free growth. For instance, near the edge of the lake are colonies of the Japan Primrose in the most luxuriant health imaginable, indicating that such a position suits it well, though it is often relegated with other things to the dry open border. Again, in spring the lawn and adjoining meadow are lit up with hosts of spring flowers, consisting of Crocuses, Daffodils, Polyanthuses, Meadow Saffrons, and similar things which have done their work before the Grass grows so high as to need mowing. The massive beds by the sides of the carriage drive are filled with perennial plants of a showy character, such

ample, masses may be seen of the Oriental Poppy, consisting of over a hundred plants, all of large flowering size, obtained from seeds sown three years ago. The effect when in flower of such a mass as this may be better imagined than described; so, too, in the case of other things this massing system is well carried out; on either side of an avenue of Doodars are alternating beds, each about a square rod in area, of such things as Sweet Williams, Canterbury Bells, Foxgloves, Peonias, Eschscholtzias, Limnanthes Douglasi, and Rudbeckia Newmanni. In an isolated shaded corner of the grounds a charming wild garden has been formed in which revel in the greatest luxuriance in close company a great variety of such beautiful plants as Epimediums, Dornicums, Anemones, Narcissi, Periwinkles,



View of lawn-garden at Pendell Court: a terraceless house and garden.

are only a few beds of the simplest possible form filled with permanent subjects, and these with a few fine old trees are the only interruptions to one continuous roll of lawn from the walls of the house to the boundaries of the garden on nearly all sides. Beyond the lawn in front of the house and across the lake the eye is carried to some rich, undulating pasture land covered with fine tree growth, arranged in picturesque groups by Sir George Macleay since he acquired the property; looking towards London the view embraces the white cliffs of Caterham with a rich tract of arable land intervening, so that, though the house lies somewhat low, it has nevertheless the advantage of extensive prospects and shelter that a high position would not afford. Everywhere about this delightful garden one sees the

as Tritomas, which produce a grand effect in autumn; others contain Roses, pegged down so as not to interrupt the views from the house across the lawn. Hardy herbaceous vegetation of a bolder type, particularly that having large handsome foliage, is made much of here, and is strikingly effective. By the margin of the lake are grand specimens of the two Gunneras (*G. manicata* and *scabra*), both of which delight in the moisture obtained from the water-logged subsoil. Such plants, too, as the Giant Cow Parsnip (*Heracleum*), placed in sheltered nooks, have a fine effect, and the same may be said in reference to the larger Rheums, *Ferulas*, and plants of a similar character.

Grouping the more showy type of hardy plants is carried out on an extensive scale; for ex-

Saxifrages, *Dentarias*, and a host of other less conspicuous things, including a wide spreading mass of the modest little *Linnea borealis*. The glasshouses, too, teem with plant life, and afford a source of perpetual interest, for there is scarcely a day in the year during which one or more plants of more than ordinary importance are not in flower. As, however, we lately gave a full account of the houses and their contents, it is unnecessary to advert to them further, except to say that since our last visit considerable additions have been made for the accommodation of an ever increasing collection of plants. A spacious span-roofed house has been built, to be devoted to the culture of such plants as require protection, but not much artificial heat, such as Australian, New

Zealand, Cape of Good Hope, and Chilian plants, and no doubt this house will in course of time be one of the most remarkable of all. We noticed, too, that in most of the houses a more natural style of arranging the plants is being carried out—one in which pots and stages are done away with. We have previously described the delightful fernery here, which is planted in the most natural manner conceivable, and now a similar plan is being carried out with regard to the Bromeliaceous plants; instead of being grown in pots, baskets, &c., they are made to clothe a wall of Moss, placed so as to represent a natural bank, not a flat mass, but one abounding with irregularities and intricacies; on this mass of Moss the plants are dotted about in a most charming manner. The health and vigour of the plants in that part of the house already arranged in this way contrasts in a marked degree with the abortions one often sees grown in pots. When finished, this house, which is a large one (three small structures having been thrown into one), will be as picturesque as the fernery. The aquarium, too, has been considerably enlarged; over the tank, grown in the greatest luxuriance, is the rich collection of epiphytall Orchids, consisting of such kinds as Vandas, Aerides, Saccalabiums, and Dendrobiums, thus fully showing that this class of Orchids delights in an atmosphere perpetually laden with moisture. Throughout all the houses the planting out system is observable, and the successful results of the practice are evident to everyone who has seen the place or any of the productions from it.

We have only to say that this garden, with its hosts of plant treasures, is kept in an admirable condition by Mr. Charles Green, now, happily for all plant lovers, gardener here. When we first went to see that richly stored botanic garden of Mr. Borrer, at Henfield, he was then in charge of it, and had there, well cared for, many things we have never seen since, as well as many which are now getting better known. Then, with Mr. Wilson Saunders, he had charge of a most interesting collection; and now Sir George Macleay has in him one in whose hands such a large collection of valuable plants is in the safest keeping. W. G.

ROSE GARDEN.

SPRING CULTURE OF THE ROSE.

WITH such rough boisterous winds cutting the tender leaves of Roses into shapeless shreds, and storms of hail alternating with floods of rain, it may seem like cold or bitter irony to write of culture of any sort. The poor Roses have been so badly whipped by Saturday's winds, that many leaves have been riven clean off, and more have been beaten and battered into blackened masses; and yet all these and other hardships but strengthen the need of as much culture as possible. That given to the roots is perhaps the most valuable. A good many Rose breaks this season have caused disappointment. They have been weaker, far more so than was anticipated. Whether this weakness has arisen from their precocious growth, the unripeness of the wood, or other causes, the fact has to be reckoned with all the same. More difficult still, the weak growths have to be converted into strong shoots before the latter get into bud. Is this possible? Well, to some extent it is, and few things tend more powerfully to bring about such welcome transformation scenes to rosarians as the conversion of weakly breaks into strong flowering shoots as the application of manure water to the roots of Roses. It may seem absurd to talk of watering Roses after the recent deluging they have had; but, nevertheless, if you want prompt effects, liquid stimulants are the shortest cuts to such. Solid dressings may be even more sure, but then their slowness is fatal just now. Prompt effect, rapid action, are now all im-

portant. Unless weakly breaks are forced into strong shoots within the next fortnight or so, a season is sacrificed. Hence there is not a moment to lose. Whether the weather, therefore, shine or shower, give the weakly breaking Roses a good deluging of manure water or sewage. Of course it is assumed that Rose beds or borders are well drained; if so, there need be no fear that our artificial waterings will produce any excess of water at the roots. It takes a heavy watering to produce 1 in. of water, such as fell in many districts last Saturday week. As soon as the surface becomes dry run a hoe over it; this not only keeps the strength of the manure in the soil, but also keeps down weeds, and the mere looseness of surface seems in itself an aid to increasing the number and strength of the roots. If the latter can be done, the weak breaks will in a short time become strong shoots as a matter of course. The disbudbing and thinning out of weakly shoots is another most important branch of the spring culture of the Rose. That the reduction of the number of Rose shoots if made in time will strengthen those left is just about as obvious as that twice two are four. Disbudbing on a large scale is tedious work; so also for that matter is budbing, especially of dwarfs on your knees, with the sun threatening to broil one's brain, if not scald one's fingers. But if it is worth while to bud, buy, and grow Roses, it is surely also worth while to disbud or cut out every weakly, worthless shoot that but robs or weakens its betters. On the majority of Rose trees and bushes sufficient buds or breaks might yet be selected to produce fine blooms were many of the earlier and weaker ones at once removed. On not a few plants the upper buds are the weaker. It almost seems as if part of the sap that ought to have gone to fill them had oozed out of the rank and late-made wood above them; hence their thinness and leanness. Be that as it may, if these are promptly removed, some of the lower ones will come away more vigorously. The recent storms of wind, rain, and hail furnish additional reasons for vigorous and prompt disbudbing. The leaves of not a few of the forwarder shoots are ruined past recovery. It will, therefore, greatly improve the appearance, as well as add to the strength of the shoots left, if many of these whipped, disfigured shoots are at once removed.

Other operations, such as disbudbing, may be done at once, and these and the destruction of insect pests should proceed together. Nothing astonishes us so much as the consideration with which not a few amateurs treat insect pests on Roses. They see them and allow them to thrive and fatten while they purchase or prepare their remedies. They seem to make a field day of a grub or an aphid hunt as a farmer does of a sheep washing or a harvest home. All such tactics are fatal. The true rosarian is down upon fly, grub, or caterpillar the moment he spies either, and he reaps the reward of his promptitude in having probably no second. It is the first catching alive and killing on the spot that keeps the plants clean and strong throughout the season, and it cannot be too clearly seen and acknowledged that only clean plants are strong. It is not only what the insects eat that is to be regretted, but the entire Rose tree or bush is soiled and weakened by the presence of maggots and aphides. Hence there must be no waiting till they form a colony—the colony a myriad—but the moment a grub, a fly, or a caterpillar is seen let it be squashed. With such Rose shoots thus fully exposed to light and air, and carefully guarded against the attacks of insects, and the root border refilled with liquid and every immediately available food needful, not only will the individual blooms be perfect, but the foliage clean, and the shoots so strong as to relieve all anxiety about the present and future supply of Roses. D. T. FISH

A failing Marechal Niel Rose.—I have a Marechal Niel in a lean-to greenhouse; it is planted in the centre of the house, and spreads itself over the roof, the size of which is about 26 ft. by 15 ft. There are seven vines in the house, and very prolific, too, they are, and under them

the Marechal, which is about six years old, has bloomed splendidly for several years. I cut last year about 1500 blooms off it, and exhibited a few of them at Rose shows on several occasions, and each time obtained prizes. Being attacked by canker in 1880, I scored the cankered part with a knife, and the diseased excrecence subsided. This year the blooms, which number about 700 to 800, are very small and sickly. I give the tree every attention in my power, and feed it yearly with rotted cow manure and fresh mould. I would be much obliged if any of your readers would kindly tell me the best thing to do to restore the tree to its former health and vigour. It has been suggested by some friends not to let it bloom at all next year, but to pick off all buds as they appear. The main stem is about 1½ in. in diameter, and yearly until this season it has sent out fresh wood; this it has not done this year. —ELEANOR.

NOTES FROM NEW ENGLAND.

VIRGINIAN POKE.—"H. P.'s" remarks on the Poke Weed (p. 179) remind me that at Dalvey, Moray, we used to grow this same plant—*Phytolacca decandra*—in a pot in the old Victoria Regia house, then used as an intermediate stove. The fact is, we did not know much about it, otherwise it would not have been there. In America it is a rough weed, appearing abundantly on recently burned grounds. The farmers around here call it Garget plant. Some folks have one dish of Poke Weed "greens" a year. They take it in the springtime as a blood purifier. It is far from being palatable, nor is it customary; modern patent "bitters" and other nostrums are displacing the herbs of our forefathers. In cooking it blackens and soils the utensils very badly.

NELUMBIA LUTEUM.—Considering how plentiful this *Nelumbium* is in our western waters, it is wonderful how scarce it is in the east. It is naturalised in a few places on the Atlantic board, but only a few. It is a deep water plant, and the roots are harder to get than those of our eastern *Nymphaea*, and when we do get them, by carelessness, and often through ignorance of their importance, the long buds are not unfrequently broken off the tuberous roots. When this is the case one may as well plant Banana fruits as *Nelumbium* tubers with broken buds; neither will grow. When in the neighbourhood of Chicago in August last year I observed people on the railroad trains bringing in armful bundles of these gay Lilies to the Chicago market, in like manner as is done with the fragrant *Nymphaea* in the Eastern States.

NYMPHAEA TUBEROSA.—I think it was in THE GARDEN some time ago I observed a word of praise for *Nymphaea tuberosa*. Well, this is a very fine Lily no doubt, but its excellence is peculiar to the west rather than the east. In the West and South-western States it grows and spreads most thriftily, and blossoms lavishly. Here we have lots of it in our pond, and it grows rankly, throws its leaves up out of the water like a *Nelumbium*, and has large white blossoms, but not many of them. Although the flowers are larger than those of *N. odorata*, they are scentless; hence, not to be compared with the fragrant species. What is the use of making a fuss about how to plant Water Lilies—heaps of rich loam to grow them in, and stones on the top of that to keep the roots in their places? The way in which I have always planted Water Lilies is to tie the root to a piece of moist sod, and drop it into the water where I want it. The sod will sink to the bottom and stay there, and the fastening keeps the root firm to the turf for a season; after growth begins, the rootlets themselves bind it firmly to the soil. Nor do we want heaps of loam to grow our Water Lilies in; the mud and sediment that accumulate in ordinary

ponds are all that they need. Our pond has a brick-clay lining with 2 in. to 3 in. of accumulated sediment over that, and in this the Lillies thrive as well as any one could wish.

TAGETES PARRYI.—I have seen this now and then noticed in THE GARDEN. Now what there is in this plant to elicit commendation I know not. It is vilely malodorous; a rough, rank growing, weedy thing with poor blossoms, and very few of them compared with what we should expect from a Tagetes. It is perennial in character, but not hardy, nor nearly so. I have grown it on the topmost plot and driest nook in our rockery bank in the open garden and stunted in pots, and everywhere its rankness is apparent, and there seems nothing in it to commend it horticulturally, and yet Dr. Palmer tells me that in the mountains of Northern Mexico, where he discovered it (it was Palmer who first discovered it, and not Parry, as the name might suggest), it formed a perfect golden sheet.

ROMNEYA COULTERI.—I lost this; a destructive and unexpected frost visited us on the 5th of October last, and in our hurry the night before to get all tender plants under cover the Romneya was lifted, stored, and, when its turn came, cropped and potted. Yes, the "great rough thing" was cropped over as if it were a Hollyhock or a Larkspur, and thus what I had been guarding so carefully was murdered through ignorance. Well, how to get another puzzled me till I saw that seeds were advertised by Mr. Thompson, of Ipswich. Sixpence was the amount expended, and now I have four or five nice little plants in thumb-pots, and they are Romneys, too.

A NEW COLUMBINE.—If last autumn I sent to any of our correspondents in Europe a Columbine marked "*Aquilegia* sp., from Mexico (Dr. Palmer), flowers white and yellow," it is a new species, named by Sereno Watson A. longissima. Dr. Palmer discovered it in 1880 on the mountains of Northern Mexico, and secured dried specimens for the herbarium and a few seeds for the garden. I raised a nice lot of plants from these seeds, and wintered them in a cold frame where they were bound in a cake of ice from last December till March 1. Apparently they are as hardy as our other Columbines, and harder than A. olympica and pyrenaica. I expect them to blossom this year. Dr. Palmer tells me the flowers are white and yellow, tinged with pink, and the spurs from 6 in. to 8 in. long and very narrow. Indeed, judging from the herbarium specimens, it will hold as striking a rank among Columbines as *Cypripedium caudatum* does among Lady's Slippers.

"NO VEGETABLES" IN ENGLAND is certainly amusing and ridiculous. Speaking of Corn, the *Pall Mall Gazette* correspondent says, "that best of all earthly vegetables, green Indian Corn," and "W. R." pronounces it to be an excellent vegetable. Well, perhaps that depends upon taste. For myself, I am very fond of Corn—green, canned, hulled, and popped, or as meal made into hominy and eaten with milk, or, as I have it frequently, as Johnnie cake, eaten with butter and molasses; yes, even in its simplest bread-state, I prospered rarely in the South on "dodgers," eaten with buttermilk. But there are many people here, particularly those of European birth, who do not like Corn in any form, and will not eat it. The same with Tomatoes and Squashes, but, as a rule, foreigners take more kindly to Tomatoes than to the other two.

FRANK MILES tells us (p. 193) that the early Cyclamens and Hepaticas are past their best. To us here that seems strange, considering that the only outdoor blossoms in our garden to-day (April 8) are Crocuses, Snowdrops, Siberian Squills, Hellebores, one bloom of *Fris reticulata*, and *Cornus mas*. You are ahead of us just now, but by the end of June we shall be ahead of you.

BERBERIS TRIFOLIATA.—Your note (p. 194) on evergreen Barberries reminds me of *B. trifoliata*, a native of Texas. It is not hardy here, but in its native wilds I have known it to bear with impunity 20° of frost, and as it is such a pretty Holly-like bush, and will thrive so bravely on the hottest knolls one can afford it, surely it should be of importance in England. It is quite unlike the *Mahonia* section.

HOVEY'S CAMELLIAS.—At this time of year a good deal is said and written about Camellias. I wish you could see Mr. Hovey's Camellias just now. You have finer specimens in England,

forth in spring stronger than before. It requires some 25° of frost to strip it of its leaves. It usually retains its foliage green and healthy looking till Christmas, and often later.

WILLIAM FALCONER.
Botanic Garden, Cambridge, Mass.

GARDEN IN THE HOUSE.

DINNER-TABLE DECORATION.

At this season of the year the table decorator has abundant variety to work with; in addition to his ordinary material in the way of exotic plants, or flowers grown or forced under glass, he has what is even more effective and pleasing—viz., the hardy garden and wild flowers, now springing up abundantly on every piece of waste ground, while in the woodland garden a carpet of the freshest foliage and flowers is spread out for this selection. Then there are evergreen and deciduous trees and shrubs that flower in spring, beginning with catkins, and increasing daily until the wild Cherries look as if clad with snow, and *Ribes sanguineum* like veritable burning bushes. But it is amongst those not so conspicuous that the table decorator will find his most effective material. The young foliage on the Sycamores and Maples, delicately tinged with colouring, is exquisitely lovely, and the drooping tassels of fringing-like flowers, of quiet colours, are really beautiful by artificial light. An account of a few tables lately decorated may be interesting. For the centre we use circular tins with a rim about 1/2 in. high. These are employed for pot plants, or groups of plants, lifted with their roots, so that they can be replanted. Daffodils, wild Primroses, coloured garden Primroses and Polyanthuses, Aconites, Hepaticas, Lily of the Valley, Pansies, Violas, Ferns, Lycopods, and Mosses make excellent groups. If for large tables, a central Palm or other graceful-foliaged plant is added; and when the group is set on the table a little Moss is laid round it to hide the rim of the tin, and some foliage and flowers are inserted in the Moss, only one kind of flower being used at a time. Some kinds of flowers look best on the white cloth, and in this case a bordering of flowers and foliage is placed just within the space required for the plates, glasses, &c., and a design of some kind is worked around the candelabra. But in the case of white or yellow flowers a bright groundwork of coloured satin is placed over the white cloth to cover the centre of the table, the margin being covered with flowers and foliage; and in the case of the flowers and foliage of trees or shrubs being used, some soft clay is placed in the tins and covered with green Moss. Into this sprays are fixed, to form groups of a height and size to suit the table. We have lately used the catkins of the common Alder, the drooping flowers of the common Sycamore, *Ribes sanguineum*, common Laurel, the wild Cherry, the snowy *Mespilus*, and many others—in fact, there is a constant succession of material throughout the year, but none so rich in variety as that obtainable in the spring. The Magnolias are now in fine condition, and Banksian Roses are just expanding. Many other wall plants, such as the Wistaria, also look lovely trained on arches over the table; but always bear in mind that, to look well, the flowers must appear as if growing in the positions in which they are placed.

Linton.

J. GROOM.



Use of hardy fine-foliaged plant in garden landscape (p. 325)

but certainly not better kinds. I have no hesitation in pronouncing Camellia C. M. Hovey to be the finest Camellia extant. In a recent GARDEN a rather favourable allusion was made to the indentation at the end of Camellia petals; in my opinion this indentation is a fault.

BEGONIAS.—Apropos of your note on *Begonia semperflorens rosea* (p. 196), I may say that in close or shaded greenhouse quarters the pink blossoms are pale, and often the pink border is prettily defined, but if you want to see this *Begonia* in the fullness of perfection, sturdy vigour, and with glistening deep pink waxy flowers, plant it out as you would a *Pelargonium* or *Heliotrope*. I have grown it for two years and am well pleased with it.

AKEBIA QUINATA.—Is it possible that this *Akebia* is generally recognised and treated as a cool greenhouse plant in England? Here it is one of the best of our hard-wooded Vines on the low land and high land alike, bearing unprotected at least 20° below zero, and budding

Wallflowers in table decoration.—We have often spoken of the greater need in all artistic gardening of "unity of expression," that is to say, of allowing us to see one thing at a time instead of the usual mixture of plants and

labels. Lately we were observing how much better the effects in dinner-table decoration are when one plant is wisely used. A simple and effective arrangement we saw the other day was composed of a ring of Wallflowers in low, simply formed glasses—a small one alternating with a large, a bunch of Wallflowers in each. This formed a ring varied in height, owing to the smaller and larger glasses being alternated. We never saw flowers to better advantage. The most costly arrangement of cut flowers could scarcely have equalled it—V.

FLORAL DECORATIONS.

LAST week I received a basket of flowers from an old-fashioned Devonshire garden, and truly sweet they were; and when arranged in a large old blue china bowl, it would have been a difficult task to have made a better effect with their tender rivals grown in heat under glass. There were China and other Roses in bud and more fully blown, many-hued Anemones, dark brown and light golden Wallflowers, gold-laced Polyanthus, the mealy Auricula, many-coloured Pansies, blue Borage, blue and white Forget-me-nots, the starry white Clematis, Lily of the Valley, Silene, sweet-scented Stocks, Pheasant's-eye Narcissus, Scillas, London Pride, red and white double Daisies, Southernwood, Rosemary, Lavender, Fern fronds, and trails of small-leaved Ivy, and last, but not least, some large pieces of a charming Fern-like Moss. This I placed on a large oval dish and made a perfect mat-like foundation, into which I arranged dark purple Pansies, Lily of the Valley, the white star-like Clematis, a few light flesh-coloured, half-blown Roses, and some small Fern fronds. The other flowers which I placed in the bowl I tried to arrange as boldly as possible, so that they stood out well, each bloom being kept clear of its neighbour, and I placed a spray of Ivy in the form of a handle across the whole. The Fern-like Moss just mentioned is to be found in many woods round about London and in Kent; and it may be useful to some of the readers of THE GARDEN who live in London and other large towns to know that this Moss can be kept fresh for weeks, I might almost say months, in sitting rooms, even where there are fires and gas burnt, by keeping it well soaked with water and sprinkled over-head every night, moving it the last thing into some cool place. A dish of this Moss takes but few flowers to dress it. A handful of Cowslips and spikes of the purple *Orchis maculata* with a few Ferns interspersed look very pretty, and will remain fresh for quite a week if treated as I have just stated. A small-growing hardy Fern, placed in the centre of the dish or tazza, looks well, and gives light to the arrangement.

ANNIE TYRRELL.

The Cottage, South Norwood Park.

NOTES FROM MADEIRA.

THIS charming island is well worth a visit for the scenery alone. There is, however, no "alpine vegetation" at all, and but few hardy plants, and those not by any means new to our English gardens. At and around Funchal, however, some of the private gardens are really magnificent, and the wealth of stove and greenhouse plants, all, of course, grown without the slightest protection, is simply wonderful. In one garden I noticed the Judas tree, about 30 ft. high, in bloom, festooned with scarlet Passion-flowers, Solandra, with its immense Datura-like flowers, and Duranta, a mass of yellow berries. The general effect of this luxuriant growth and mass of colour was very grand. There were also fine specimens of Poinsettias, India-rubber trees, Grevilleas, Jacarandas, Alpicias, Bottle Brushes, large Hibiscuses, three kinds of Strelitzia, a group of one variety being some 12 ft. to 15 ft. high; a Dragon tree, nearly as large as that lately figured in THE GARDEN, masses of Bougainvilleas, just a little past their best; large clumps of very fine Amaryllises, flowering Pine-apple, and flowering Banana.

Nearly all the plants I have mentioned were in full bloom and in perfect health. Besides all these there were Coffee, Mangoes, Loquats, Bananas, and many others in full fruit, and such plants as Stephanotis, the foliage of which, I was told, would be quite hidden by the flowers in July. Amongst the many lovely Roses I was most struck with the single Macartney Rose; of half a dozen blooms carefully measured, not one was under 4½ in. in diameter. The return to the quiet beauty of an English spring was almost a relief after such a rich floral exhibition.

Eastcott Cottage.

A. K.

AN AUSTRALIAN MAMMOTH FERN TREE.

"My first Fern tree" is to all travellers as welcome and ever-to-be-remembered a sight as "my first snow mountain," and the first glimpse of its dark red-brown trunk rising from a bed of Maiden-hair and other Ferns to the height of 20 ft., or so, with its glorious crown of long feathery fronds spreading in every direction from the summit, and falling outwards and downwards in a graceful fountain of green, is sufficient to bring to the lips an expression of delighted surprise. Fern trees, the Palms of the Fern world, are amongst the loveliest productions of Nature, and Australians may well reckon themselves fortunate in having such things of beauty almost at the very doors of even the dwellers in great cities. Adelaide and Hobart are perhaps the most favoured of the capitals, having each bowers of Fern trees growing within about an hour's drive of the heart of the city. In the great Huon Forest, which clothes the southern and western slopes of Mount Wellington at the back of Hobart, are whole groves of Fern trees growing so thickly together and so luxuriantly that as one passes up their long cool aisles it is only here and there that a stray sunbeam pierces the ceiling of pendulous greenery overhead, whilst beneath one's feet are the decaying trunks of thousands of their predecessors which have succumbed to old age and the fury of the mountain storms. I measured a frond from a giant specimen in one of these groves 14 ft. in length; another Tasmanian giant grew within a few yards, a mighty Gum tree, 240 ft. in height, whose massive weather-beaten bole 6 ft. above the ground it took five lengths of my Fern frond to encompass. The Blue Mountains of New South Wales furnish superb specimens of Fern trees, especially in the Yosemite valley of Australia, the world-famous gorge of the Goose River below Govett's Leap Fall. The perpendicular cliffs, from 600 ft. to 1200 ft. in height, which hem in this grand ravine, keep off the winds, and a sub-tropical vegetation is thereby prompted, the still, damp, warm air causing the finest of the Fern trees to attain a height of 30 ft. But Victoria deserves the palm for producing the Mammoth Fern tree. In the Dandenong Ranges, some forty miles north of Melbourne, there was recently discovered a specimen growing in a secluded gully which was of such dimensions that it was determined to uproot and convey it to the capital. It was consequently stripped of its hundred fronds and dragged from its bed by a team of oxen to be placed in the Melbourne Botanical Gardens, whence came the monster which has formed so great a source of attraction at Kew. The weight of the colossal trunk of this Fern tree when deprived of its foliage was found to be more than a ton and a quarter, and those who know the porous, fibrous nature of a Fern tree's stem may be able to form some slight idea of the gaint. This is undoubtedly the mightiest Fern that has been brought under the observation of botanists, and Baron Von Mueller estimates its age at a century or thereabouts.

—A. G. GUILLEMAR, in *Journal of Forestry*.

An ancient herbarium.—Garlands of dried flowers have been found on the breasts of mummies at Deir el Bahari, which must be 3500 years old. The flowers were so well preserved that the colours of the petals and the green of the

leaves were almost perfect, and every species could be easily identified. Chief among them were the Egyptian Willow, Acacias, the blue Water Lily of the Nile, Larkspurs, Water Melons, Palm leaves, &c. Dr. Schweinfurth preserved the leaves and flowers by moistening them in alcohol, and he afterwards dried them in his herbarium. Two of the garlands were found on the breast of King Aames I.—*Science Gossip*.

GARDEN FLORA.

PLATE CCCXXXVI.—WINTER-BLOOMING SALVIA.

THE accompanying plate accurately represents five varieties of this beautiful and free-blooming family, which is one of the most numerous in the vegetable kingdom, somewhat over four hundred distinct varieties having, I believe, been described by botanists. As will be seen from the portraits of the varieties here represented, they vary greatly from one another in both form and colour of flower and in habit of growth. The robust-growing, pink-flowered variety is the improved form of the well-known *S. involucrata*, raised by Mr. Bethell, and known as *S. involucrata Bethelli*; it is a most abundant bloomer. The variety next it in the plate is *S. leucantha*, most inadequately figured in the *Botanical Magazine*, vol. lxxiii., tab. 4318, and almost more remarkable for the conspicuous beauty of its purple-plush calyces than for the flowers themselves, which are a dull white. This species is a quick grower, easy of propagation, and an abundant bloomer, almost every branchlet being terminated by a spray of bloom. Cuttings struck in spring, and planted out in a border for summer and autumn, will make good plants for lifting into pots about mid-September, afford abundant bloom, and prove a most welcome ornament for the winter greenhouse. Care should be taken, however, to lift them before there is any danger of frost, as they are extremely sensitive, and are quite spoiled, just as *Heliotropes* are, by the first frost of any severity. The little blue-flowered variety at bottom of plate is of a much more slender and delicate habit of growth, and is named *S. caciaefolia*; it is indigenous to the Pine forests of Mexico, and is stated in the *Botanical Magazine* to be probably hardy, but on this point I can say nothing, as I have always grown it as a greenhouse plant; it is a free-blooming and very pretty variety. The scarlet-flowered kind is the improved form of the well-known *S. splendens*, raised by Mons. G. Bruant, of Poitiers, and known as *S. splendens Bruantii*. It requires the temperature of a cool stove, but is a most brilliant and beautiful variety when well bloomed. The other kind figured is a fixed sport from the last named, raised by a Mons. Issanchou, after whom it is named, but is unfortunately extremely delicate in constitution, the first plant I had of it, though it reached a good size and bloomed with tolerable freedom, having died immediately after blooming without any apparent reason. Its flowers are pure white, but soon fall after fully expanding, leaving, however, the extremely pretty pure white calyx, striped with scarlet, which ornaments the bloom-spikes for a considerable length of time. This pretty variety was, I believe, first introduced into this country from France, its birthplace, by Mr. Camell, of Swanley, who exhibited it at one of the meetings of the Royal Horticultural Society in the course of last summer, where it was much admired. It is figured in the twenty-eighth volume of the *Illustration Horticole*, but not very accurately as to shades of colour, there being no yellow shading in the calyx, or red in the base of the flower-tube, as there



depicted. I stated at the commencement of this note that over 400 varieties of *Salvia* had been described. I see that the exact number is 407, of which above half are said to be ornamental, and worth the attention of florists.

W. E. GUMBLETON.

INDOOR GARDEN.

PENTAS CARNEA.

This pretty evergreen stove plant has never become so popular as it deserves to be, though it has been some forty years in cultivation. When grown as it should be it is remarkably handsome, robust, and very floriferous. The flowers, produced in terminal clusters, are a delicate soft pink, when first expanded, but gradually deepen on exposure. In the variety *Kermesina*, which is the finest, the flowers are



Pentas carnea.

of a uniform deep rose-pink, very bright and pleasing. The plant itself is such a rapid grower that it will form a good sized bush in one season from a cutting, and if kept under favourable conditions will continue to flower throughout the greater part of the year. To grow it well it requires a rich soil ample pot-room, and abundant waterings, with an occasional dose of manure water when in active growth. It may be grown in a moderately warm greenhouse, but as it is a native of Western Tropical Africa it is most at home in the high temperature and moisture-laden atmosphere of the stove; though, of course, like similar subjects it will take no harm while in flower in summer in a house having lower temperature. It is easily propagated by means of cuttings, which, if taken off the extremities of the young shoots as soon as they have become firm, will strike root in a week or so if inserted in sand under a bell-glass in heat.

W. G.

SUMMER TREATMENT OF CAMELLIAS.

CAMELLIAS as a rule will now be in full growth, and the quicker and more robust they can be made to grow the better, as this will ensure a thorough ripening of the young wood before the short days set in, and be a great advantage to them at the blooming period. Nothing equals well developed, thoroughly matured wood for producing blooms abundantly and of the finest quality. Some object to

Pruning *Camellias*, but I presume it is only those who have not much growth to cut away who do that. In many instances it is necessary. We are often obliged to do it, and in no stinted way. Some of our trees which are growing in a cool house became so close in growth last year, that it was impossible to see into them or through them.

As soon as they had finished blooming in spring, and just before they had got fairly into growth, we pruned great armfuls from each of them, so as to admit light, air, and sun into them, and since then they have gone on growing in a most satisfactory way. From some of the old shoots there are six and eight growths about 1 ft. in length each, and they all look like bloom-bearing wood. Had they not been pruned, they would have been one intricate mass of shoots with small chance of ripening properly; now their chances are much better. As a rule it is now too late in the season to prune, but were I beginning to take *Camellias* in hand which would be benefited by pruning, I would even now be inclined to let daylight into them. This might check them for a little time, but before the end of the season they would be in better blooming condition than if left too thick as regards wood and leaves. The main growths need not be removed, but where there are many small weak branches clustering together many of them may safely be taken off. This is the first thing which should be seen to in beginning the summer culture of the *Camellia*, and secondly the

Cleaning.—Where the leaves are close and the branches massed together, ordinary syringing may not have kept the foliage quite free from dirt and insects, but as soon as pruning is over a thorough cleansing must take place. The wood may be brushed with a hard hand brush, and all the dirty leaves carefully sponged. Once thoroughly cleaned in this way, they may easily be kept in that condition by frequent syringings. Plants which may not want pruning should also be cleaned before growth has much advanced. Then comes

Root attention.—*Camellias* are not benefited by having their roots upset annually; on the contrary, once they get into a thorough growing state they are better undisturbed for years, but they must be well supplied with water. It is of much importance that all the soil about the roots be in a sweet moist condition before growth begins. Without this their progress will never be satisfactory. Those in pots should be plunged in some material at this time, as plunging lessens the chances of their becoming at any time too dry. Soot water may be given at the roots once weekly with advantage, and from the time the shoots can first be seen until the bloom buds are visible they should be syringed overhead once or twice daily according to the weather. Respecting the

Temperature in which *Camellias* should make their growth, there are great differences of opinion, some putting their plants into a vinery or Peach house, but ours are never out of the house in which they bloom, a structure where artificial heat is never introduced except to keep out frost. In some cases much shade is applied, and in others none at all, and under both modes of management the plants succeed, but our experience causes us to prefer no shading. When once subjected to shade, it takes careful treatment to harden them up to stand the sun-heat again, and a little of this is necessary in order to ripen the wood well in autumn. After growth has been completed, and it is seen that the flower-buds are well set, syringing may cease, and water may be more sparingly applied at the root, at the same time avoid drying them off in any way, or withholding water until the roots or leaves shrivel. Plenty of air should also be given them at that period; anything like a close, moist atmosphere and much shade must not be encouraged. Flower-buds falling off before they open is a complaint often heard; but this is only the result of some severe check or change in the state of the soil or atmosphere. Immature wood never holds its buds or opens them so freely or well as that which is hard and sun-ripened, and this all should do their utmost to secure from now until well into the autumn. CAMBRIAN.

Propagating double Primulas.—I have seen (p. 273) an article by "Cambrian" respecting the propagation of double *Primulas*, and should like to state the way in which I have been success-

ful with them, as it is a much safer mode and may not be generally known. When the plants have done flowering I pack some damp Moss round the stem and side shoots, keep them in a moist situation in a gentle heat, and in a few weeks the Moss is full of white fibrous roots, when they may be parted and potted off at once.—T. W. HERBERT, *Bletchingley*.

LATE AUTUMN FUCHSIAS.

In order to have nice little plants for blooming late in autumn cuttings should be struck now. Put them in sharp sandy soil and keep them for a week or two under a hand-light or bell-glass in any house or cold frame, where they can have shade and be kept moist by an occasional syringing, and they will soon strike root. The shoots that form the best cuttings are those that are strong and short-jointed. As soon as rooted it will be necessary to pot them on at once in order that they may have no check. For growing *Fuchsias* nothing answers better than rich fibry loam with a little leaf-soil or very rotten manure added. In this they should be potted somewhat loosely and kept in a close pit or frame to give them a start. As soon as they get well hold of the soil they may at once be moved to a shady situation out-of-doors, as though the growth will not be so rapid, what they make there will be shorter and firmer, and compact little plants that flower freely are always the most valuable for general decorative purposes, as they come in for vases in rooms and window embellishment, purposes for which small *Fuchsias* are specially well adapted. To keep the roots uniformly moist when the plants are grown out-of-doors, it is a good plan to plunge the pots in littery straw or some other non-conducting material, which should be wetted from time to time by watering the *Fuchsia* overhead after the drying heat of the day. This damping will refresh them greatly and help to keep them clean, as well as assist them in their growth, and to make them compact and symmetrical, they should be stopped once by having the points of the side shoots nipped off, when they will soon branch and form perfect little pyramids, a shape which is the most suitable for *Fuchsias*. Plants raised from cuttings now and treated in the manner here specified will not only be most valuable for the autumn, but they will be of great use for starting early to make compact specimens the following spring. S. D.

HYBRID GREENHOUSE RHODODENDRONS.

It cannot be doubted that the exceedingly fine strain of these obtained from seed by Messrs. Veitch supplies to plant growers a race of the greatest value for blooming in a stove or warm greenhouse during the spring months. It is to the introduction of R. Lobbi and R. javanicum that we owe these fine hybrids; these were crossed with each other, and both were made seed parents. R. retusum, also introduced from the Java mountains, has been used as a seed and pollen parent and Princess Royal, Princess Alexandra, Princess Alice, and others have been the result, the newer shades being Duchess of Edinburgh, Duchess of Connaught, Aurora, Favourite, &c. An early hybrid named R. Tylorli, having pink and white flowers, has also been used as a parent with marked success. It is during these last ten years that these results have been in course of realisation. Two main objects have been sought for in making crosses in later years, viz., the production of larger and brighter coloured flowers, and also of greater vigour in the plants. Those who have seen at the meetings of the Royal Horticultural Society the newer and later seedlings raised by Messrs. Veitch must admit that both objects have been attained in a remarkable degree. The flowers have nearly doubled in size, the rays of fine form, of rich and distinct colours, borne on large and imposing looking trusses, and the orange and red shades are particularly striking. A strain of double flowering forms is not improbable, but the double character does not always enhance the decorative beauty and usefulness of plants, and

it is doubtful if it would do so in the case of these Rhododendrons. When fertilised, the plants seed somewhat freely. The seed ripens in three or four months after it is sown, and it germinates readily; but the raiser has to wait a time ere he reaps the reward of his exertions, as four or five years pass by before the seedlings flower and reveal their true character. R. D.

Double Petunias.—These are evidently gaining favour with cultivators in the west of England. Mr. Randall of the Exe Bridge Nursery, Exeter, has raised some fine kinds, nine in number, distinct from anything I have yet seen amongst double Petunias. The individual flowers are large in size, their centres being made up of stout well marked petals. The colours, too, are well varied, and many of the varieties have fully developed guard petals which give a finished appearance to the blooms. Mr. Randall, I feel sure, would interest many by relating how he manages to get such large individual flowers upon such small plants.—J. C. C.

Trillium grandiflorum.—My experience of this beautiful plant leads me to doubt Mr. C. Wolley Dod's theory that "it likes a severe winter." I planted a Trillium on the slope of a rocky here, rather shaded by trees and about 300 ft. above the sea level, in the autumn of 1880. In the spring of 1881 it was nowhere; in fact, never appeared at all after the severe winter of 1880-1, and I quite made up my mind that it was killed by the frost. I had forgotten it until this spring, when I was glad to see it make its appearance above ground, growing vigorously and displaying three or four of its snow-white flowers. The last winter has been exceptionally mild here, and I have come to the conclusion that the Trillium has no objection to a warm winter, but is much checked by a severe one. The Edelweiss, on the contrary, planted on the same rocky, and which survived the arctic winters of 1879 and 1880, has succumbed during the last mild winter. Probably it has missed the snowy mantle which usually protected it during the alpine winters on the slopes above the Trift back near Zermatt, or in the Engadine, where it is most at home.—J. P. MULCASTER, *Bennett Park, Northumberland.*

FRUIT GARDEN.

SELECT GOOSEBERRIES.

"PEREGRINE" (p. 269) speaks of 80 varieties of Gooseberries being recommended in a standard work on gardening. I have a fruit list from a nurseryman in Staffordshire in which over 270 varieties are named. I take great interest in Gooseberry culture, and cultivate about 30 select varieties. In addition to the sorts named by "Peregrine," I would recommend Crown Bob, Pilot, Bloodhound, Green Glenton, White Eagle, Mollrow, Breckamore, and Industry. For quality and size, Crown Bob has stood in the foremost rank for more than half a century. Although some of the small varieties are of the highest flavour, large sorts claim attention for appearance on the dessert table. Pilot is large in size and comes in well after Golden Ball (Early Sulphur); Bloodhound is a good early red; Green Glenton is of fair size, and also of the highest quality. It hangs long and fresh on the bush, which is of the best form. White Eagle when well grown has a fine appearance and is of good quality, but the habit of the bush is not good. Mollrow is a late sort, of a fine red colour, very hairy, and for dessert superior to Warrington, and the habit of the bush is good. Breckamore, a local variety, is somewhat like the Warrington, but its fruit is not so hairy, and it does not split when kept late, which the Warrington is apt to do; the habit of the bush is excellent—like that of a miniature Oak. Industry is a comparatively new sort, and merits all that can be said in its favour; it is a large red, handsome Gooseberry, and of the highest value as a hardy market sort. In speaking of quality, Greengage is named (p. 269), and no doubt the Pitmaston variety is

meant. There is a dark Greengage in fruit lists, a very inferior sort, not worth attention compared with the Pitmaston Greengage.

Stokesley.

CHAS. McDONALD.

FACTS ABOUT UNPRUNED FRUIT TREES AND FLOWERING SHRUBS.

It is interesting at this season to note the behaviour of trees and shrubs that have not been pruned. The flowering season is the period to note which trees are fertile and which are not. Anything may happen to the crop of fruit afterwards, and I always regard the flowering season as best illustrating the fertility of the trees or otherwise. It is true that the tree that bears the most bloom may not, after all, produce the most fruit; but, nevertheless, it is the most prolific, and, as likely as not, its very barrenness in the end may be the result of its over-fertile disposition. I have made the following notes on several subjects this spring and will take them as they come.

No. 1 is a Gooseberry (Red Warrington)—shoots thinned out, but not shortened; one shoot, measuring fully 2½ ft. in length, has forty-two buds upon it, all well and regularly broken, and bearing one and two fruits each. Had it been shortened it would have pushed several strong wood shoots and a proportionately less quantity of fruit, and several of the wood shoots so produced would probably have had to be cut out at the next pruning, thus wasting the resources of the tree. No. 2 is a Gooseberry shoot of the same variety, but is a gross sucker produced from a bud underneath the soil, such as are usually wrenched out at the winter pruning. Had it been pruned, it would have broken strongly, and made more wood shoots; allowed to extend, it has grown about 2½ ft., and produced about a score of berries at its extremities. In other words it has exhausted itself in fruitfulness and all its shoots next year will be fertile. No. 3, a Black Currant shoot from an old bush, about forty years of age, two years old, 2 ft. long, unshortened, bearing twenty-six buds all broken, and bearing from seven to nine fruit each on the raceme. No. 4, Red Currant shoot, unshortened, 1 ft. long, bearing sixteen racemes of fruit. No. 5, shoot from a standard Cherry—young tree a few years planted, never been pruned nor root-pruned, shoot 2½ ft. long, branched, with twenty-six spurs, bearing in the aggregate about four hundred flowers. Pruned wall Cherries growing in the same garden producing nothing comparatively. Pyramids in another garden the same. The Cherries vary greatly in habit, some being much shorter jointed than others, and more floriferous. The straggling kinds will stand shortening at the winter pruning to keep them within bounds, but need no summer pinching whatever. Other varieties grow perfectly symmetrical and fruitful, and need no pruning of any kind. Standards make the most beautiful, natural, compact shaped heads. Those trees that want pruning will indicate it themselves. They make long wand-like shoots that are floriferous enough, but if not occasionally shortened, the heads grow straggly in a few years. No. 6, an Apple tree about 20 years of age, a Codlin, been topped when young, but never pruned; has always flowered freely, and borne abundantly in good seasons, is usually studded with flower-buds. One shoot, an example of the others, 18 in. long, branched, has twenty-seven clusters of flowers, or 162 single flowers altogether; bore a great crop last year. This tree has been removed once since it was planted, and never been root-pruned. Had it been treated as a pruned tree in the orthodox manner, it would probably have been half the size and half as fruitful. No. 7 is an unshortened shoot from a young Apple tree on the Paradise stock; a two-year-old bearing shoot 15 in. long, and bearing seventy-two flowers—a rather prolific variety, but a sample of hundreds like it, according to the habit of the tree. No. 8, *Pyrus japonica*.—This shrub affords a fine example of the effects of extension, provided the shoots are matured. Two plants on a south wall were fine objects this spring. They are young, and have grown fast, the shoots having been laid in their

entire length. One example, a shoot 20 in. long, uncut or pinched, has broken every bud, and produced forty-two fine flowers. In training the branches thinning only should be attempted, and what shoots are left should be laid in all their length, giving the extremities full scope, and tying the breastwood shoots to the outer limbs. Treated thus, the lateral eyes make fruit buds, and the shoots extend at their points only the following year. No. 9, *Crataegus pyracantha*.—This tree succeeds under exactly the same treatment as the Apple and Pear, and illustrates the effects of pinching and pruning *v.* extension quickly and in a striking manner. We have a number of quite young plants, 5 ft. or 6 ft. high, growing against a south wall, and which have never been root pruned. They are trained on the horizontal and fan methods, and invariably bear freely and principally at the extremities of the branches, which are never shortened. As the branches lengthen, spurs (breastwood) near the centre have of course to be pinched during the summer, but bear fruit very sparingly or not at all. Root pruning would no doubt throw these into fruit also, but the true way to induce the tree to bear all over would be to allow the central shoots to extend like the horizontal branches. In fact the way to grow this truly ornamental berried shrub is to treat it as an unpruned standard, in a young state occasionally root pruning it. On many of the latest formed extremities about 1 ft. long that the knife has not yet touched every bud bears a cluster of flowers, some containing as many as eighty flowers. This plant is a shy bearer when in a young state, but root-pruning and unlimited top growth will throw it into fruit almost as soon as planted, and it is well worth the trouble, for it is the most brilliant of all winter berry-bearing shrubs.

It is impossible in the face of such examples such lessons, one may say, to approve of abor-tions, artificial, after the Rivers and De Breuille pattern. If such are advocated on the ground of their ornamental appearance, then I claim that a clipped Yew, Holly, or any other shrub is equally so; and if they are advocated on the ground of their utility, I say that there is a vestige of proof in support of it. It is no more use pruning and pinching branches of fruit trees severely in the way commonly practised to cause them to produce fruit than it is to prune our Hawthorns or Hollies with the same end. Any and all of them may be benefited by having their roots cut in now and then, but not their branches. I have frequently seen both the latter produce an unusual crop of fruit after having been lifted and necessarily root-pruned in the operation, but fertility in either by cutting the branches, either much or little, I never did see, but the reverse. There are no class of trees and shrubs that flower or fruit so freely and so certainly as Hollies, Hawthorns, Crabs, Lilacs flowering Currants, Laurels, &c., and many other subjects, deciduous and evergreen, and all without the aid of the knife in any shape or form.

J. S. W.

APPLES ON THEIR OWN ROOTS.

I have an idea that Apples would succeed best on their own roots, be less subject to canker, and perhaps longer lived. Are there any sorts that strike more readily than others from cuttings? and what are the best modes of procedure?—M. WALLINFORO. [There are only a few varieties of the Apple which strike freely from cuttings, hardly enough to make the process profitable, but it is certain that some sorts can be propagated in this manner, thus, Burr Knot, Bide's Walking Stick, and some other kinds which I had at one time some half-dozen sorts will strike from cuttings, but the process is so slow, and the plants so meagre compared with a strong and healthy one year's graft, that one would hardly be tempted to carry out the experiment on a large scale. To put the matter commercially, one thousand one year's healthy and well-grown grafts would be worth £50, but 1000 cuttings of Apples on the same ground for three years would not be worth a tenth part of that sum, as the plants would not be equal in size or strength. I say three years, because

that is the time required for the graft, *i.e.*, two years for the growth of the stock, and one year for the graft; the cutting would take the same time to develop into the same sized plant. There is another way by which one might obtain plants on their own roots, and that is by root grafting. The scion of the Apple of the same size as the ordinary grafting scion should have a small piece of root of Crab or Apple grafted on it, and planted deep in the ground. This should be done in November. The piece of root will retain vitality in the graft, which will strike root assisted by the added rootlet, and ultimately form a tree on its own roots. This process is, however, more tedious than that of the stock and graft, and I would rather plant the grafted trees. The Sturmer is a seedling from the Nonpareil, and possesses the bad constitution of its parent; the Blenheim is a very slow grower, and the steed will certainly starve while this sort is coming into bearing. It is a good sort for posterity, but it is a question whether posterity will not be able to care for itself without our help.—T. FRANCIS RIVERS.]

STOPPING VINE SHOOTS AND LATERALS.
As all kinds of Vines, both early and late, will now be in active growth, it would be both entertaining and instructive if cultivators who have tried various plans of restriction or extension would detail their practice and its results. While some recommend stopping at from one to four or five joints beyond the bunch, others do not stop at all until the Grapes are set. And it would be interesting to hear how those who let them run out to any length, simply because they believe stopping or pinching can only be practised with safety at a given stage of growth, treat them when the time comes for stopping. Do they cut them back to any given number of joints beyond the bunch? or do they follow the plan of pinching with thumb and finger, so that there is really nothing to cut away? I always look upon a floor strewn with healthy shoots cut away from any kind of tree as so much loss; and until I am more firmly convinced than I am of the beneficial effects of allowing a quantity of superabundant growth to monopolise the sap and then to be cut out as useless, I shall continue to follow the course pursued by many good cultivators, viz., in the case of Vines planted from 4 ft. to 5 ft. apart, to stop the side shoots at from two to four eyes beyond the bunch, so that when tied down to the trellis the shoots from the opposite Vines meet each other, and with the laterals that make two or three leaves before being stopped completely cover the trellis with large healthy leaves. What we want settled is, Are these large leaves fully exposed to the light best able to sustain the Vine with or without a crowd of lateral growth? My own impression is that, except in any open space not originally occupied by the first crop of leaves, they do more harm than good by overshadowing the larger foliage. If it were any advantage to the fruit to have a large quantity of wood growth beyond it, the leading shoots ought always to produce the finest bunches; but this is rather the exception than the rule, for although the leader from being most favourably placed usually shows finer bunches than the weaker side shoots, yet it will generally be found that those on the side shoots finish best. If the stopping is done as soon as the shoots have made three or four leaves beyond the bunch, it cannot cause much check to the Vine, as there is scarcely any growth to remove. The laterals will be pushing out before the Vines are in flower, and by the time the setting is over they will be ready for stopping; after that, if fairly well cropped, the swelling off of the fruit will arrest growth, so that little more stopping will be necessary.

J. G. L.

Strawberry forcing.—Mr. Moore (p. 257) wishes to know how La Grosse Sucrée succeeds as an early forcing Strawberry. I have it coming on well with Marguerite, Comte de Zans, Dr. Hogg, British Queen, and Elton, all setting good crops. Marguerite seems a wonderful cropper. Comte de

Zans produces its fruit nearly erect. Eighteen years back I only grew Keen's Seedling and British Queen, but I find variety an advantage. I am gathering good fruit and heavy crops from Comte de Paris, Auguste Nicaise, and Vicomtesse Héricart de Thury. Amongst these there is little difference as regards the time of ripening. Comte de Paris is a heavy cropper inside and out, large, and makes little foliage. Auguste Nicaise is somewhat in the way of Vicomtesse Héricart de Thury, but larger. President I grow to succeed these. I have to grow my Strawberries on shelves in the back and front of vineries. I filled 360 vts. this year of shelving with plants all in 7-in. pots, except Black Prince (for an early crop), which was in 5-in. pots. I pot solid in nothing but turf, with one crock placed convex for drainage. I keep them as they flower near the ventilators till set; then they are placed in a Muscat house, on portable shelves over the inside border, 2 ft. from the ground. Here they ripen, and are all that one could wish for, the plants being perfectly clean. I attribute my success to careful watering. I go over them as one would a batch of Ericas in winter, tapping the pots with a small wooden hammer, and using weak liquid manure water from the time the fruit is set up to the time when the least tint of colour is visible. I have grown Strawberries plunged in other pots, &c., but never with such good results, nor so clean as now. I have seen very poor crops this year in houses devoted to them.—G. B.

THE MUSCAT ROMAIN GRAPE.

This Grape fruited here some twenty years ago, and proved a small light amber Grape with little or no Muscat flavour; as if presented no special points of interest, after growing and fruiting it for two or three years, it was discarded. The term Muscat is not always used by French vine growers as signifying a Muscat in our sense of the term, that is taking the Muscat of Alexandria as a type; and when the Grape proved to possess a small modicum of Frontignan *gout*, it was not considered desirable to continue its cultivation. My father did not consider that he had received a sort incorrectly named, but that the sender of the Grape was catholic in his opinions. The Muscat Romain is given in some French catalogues as a synonym of the Alexandrian Muscat, but I cannot help being of the opinion that the Muscat Romain which I remember, and which was renamed White Romain as an honest title, was the sort sent to this country as Muscat Romain, and decidedly not identical with the Muscat of Alexandria. The berries of the White Romain were small, a bright amber when ripe, very rich and juicy, skin thin and the oval berries closely packed on the bunch when not thinned. T. FRANCIS RIVERS.

Strawberries out-of-doors.—In reply to Mr. Fish's inquiry respecting Strawberries out-of-doors, I may say that here (about 15 miles north of London on a cold clay) I have never seen a better show of trusses than there is this year, but then I never plant forced plants. I have three reasons for not doing so: 1, I consider it a waste of labour hardening off and watering the plants before they are planted out; 2, it is a crop lost to do so; 3, I can never get such early or good runners from forced plants as I can from runners planted the year before. My mode of Strawberry growing is as follows: I have the quarter trenched and manured in winter, after the Savoyers are cut, and plant it in spring with Ashleaf Potatoes (Veitch's Improved). These I lift towards the end of July; the quarter is then levelled and planted with runners from 3-in. pots. I plant them in rows 18 in. apart, and 12 in. asunder in the rows. When I have one crop off them, I destroy every other plant in the first row, entirely destroy the second row, and so on, leaving the rows 3 ft. apart, and 2 ft. plant from plant. After the third crop I plant Broccoli between the rows and destroy the Strawberries. I planted a quarter in this way on the 29th and 30th of July last, some

of the plants in which are producing eight trusses. They will average five to a plant, and I expect to get from $\frac{1}{2}$ lb. to $\frac{3}{4}$ lb. of fruit from each truss. As I planted 1200 plants on a bed 8 yds. by 25 yds., I expect to get from 600 lbs. to 900 lbs. of fruit. As I intend to keep an account of the weight, I will send at the end of the season what it amounts to. The kinds I have on this piece of ground are seven rows of President, four rows Vicomtesse Héricart de Thury, two Keen's Seedling, and one each of James Veitch, Sir Joseph Paxton, and British Queen.—A. GRANT, *Brookman's Park, Hatfield.*

The Alexander Peach.—I fruited this sort for the first time on May 25, 1878—forced, of course. I was much pleased with the result of my speculation, as I imported the variety entirely on the good faith of the raiser, hardly crediting that a Peach existed earlier than the Early Beatrice. In the same house and under the same treatment the Hale's Early did not ripen until June 26, and the Grosse Mignonne and Royal George in July; the Alexander therefore effects a considerable saving in heating material. The fruit is large, brilliant in colour, very juicy, and good in flavour. The flowers are also large and handsome, and the growth of the tree compact and fruitful. I anticipate a brilliant future for this Peach. Another Peach, almost as early, was sent to me with the Alexander; this is named the Amsden. It ripens almost at the same time as the Alexander, and is as large, but the fruit is sometimes bitter and is a clingstone. I consider the Alexander the better of the two; the Amsden is, however, superior in size and earliness to any other forced Peach.—T. FRANCIS RIVERS.

PRIMROSES IN THE BOTANIC GARDEN, EDINBURGH.

THOUGH the earliest Primroses are now out of blossom, their place is taken by some that are both rare and beautiful, including many selected seedlings of *P. ciliata*, which will be a valuable addition to alpine Primulas. Most of these are much larger than the type, and possess great variety of colour. There are purples of many tints, and some also with shaded flowers; others with a clear white eye are perhaps the most beautiful, and there are cream-coloured kinds fully 1 in. across. Some of these seedlings have flowers entirely different in character from those with which we are acquainted—indeed closely approaching alpine Auriculas both in form and colouring, so that these, at least, appear to be hybrids. The leaves of some of the later kinds are serrated, like *P. ciliata*, and amongst them one or two possess considerable beauty. There are also some excellent seedling forms of *P. intermedia* and one seedling of *P. villosa* alba, dark red with a pure white eye. This collection shows that as much can be done by a careful selection of seedlings to give a greater variety of beauty amongst alpine Primulas as has been done amongst alpine Phloxes, of which some very pretty new forms are now coming into blossom in these gardens. No alpine flowers are better worth careful cultivation than Primulas of the best kinds. *P. platypetala*, a light purple double Primrose of the Polyanthus form, is quite distinct from ordinary double Primroses; *P. farinosa* alba, also *P. farinosa* superba, a bright purple variety of the Bird's-eye Primrose, are now in flower in the new bog bed. A dwarf form of *P. denticulata* purpurea of a peculiarly pretty shade of lilac is nearly out of blossom; it was at first sent out as *P. purpurea*, from the true form of which (Royle's) it, however, differs entirely. *P. Stuarti*, with an umbel of drooping yellow flowers, is now in blossom, as is also *P. sikkimensis*. If the latter, with its yellow cup-shaped flowers, is to be called the Himalayan Cowslip, *P. Stuarti* might well be called the Himalayan Oxlip, its salver-shaped flowers being very like those of the Oxlip, with the exception of their drooping habit. *P. floribunda* is also in blossom. Some plants of it lately planted out in the rock garden have not been killed by 7° of frost on April 22, but Mr. Lindsay does not think it will prove to be a hardy kind. C. M. OWEN.

ORCHIDS.

PRUNING ORCHIDS.

MR. SPYERS is wrong in saying that I decline to meet him at South Kensington. I am willing to do that under the conditions named in *THE GARDEN* (p. 268). His way of settling the matter would not be

proposed by any scientific man, either at South Kensington or elsewhere. Mr. Spyers now distinctly shifts his ground to "back breaks," and a more lengthened experiment in the face of my specimens that he is invited to see. What back breaks would do under the circumstances I cannot say at present, but I have a *Dendrobium primulinum* with thirteen good breaks, some of which had not moved when the old bulbs were cut off, and this seems to me to be pretty much the same thing, *i.e.*, dormant buds pushing without the assistance of old bulbs. Whether Mr. Spyers chooses to accept my challenge or not, I may probably, by-and-by, confront him with a problem he will have to answer in some form or other, that is if he wishes to maintain his present position.

J. S. W.

—"J. S. W." in his anxiety to uphold the injurious practice of cutting away the bulbs, ignores the effects which it has on back breaks, to the encouragement of which the increase of the plants is largely due, and to secure which, if for no other purpose, the retention of all bulbs in a living state is desirable. I venture to say that it is a little too soon, when his *Dendrobium Wardianum* has only made some 18 in. of growth, to proclaim the success of the system. The question is not one to be dismissed on half evidence of that kind. Even the effect which it has on the current growth can only be determined at the end of the season. And to prove the result of the practice, the plants so treated need to be seen after being several years subjected to it. Allow me to remind "J. S. W." that people have more faith in what

they see than in that which they only hear of, and although the results of his Orchid pruning are too incomplete to tell their full tale, yet there are plenty of Orchid growers who, if they saw the plants even when not in bloom, would be able to judge correctly of its effects. If "J. S. W." has faith in his pruning practice, and wishes to convince others of its merits, let him send a few

it will do much more to settle the question than if he were to write a volume on the subject.

T. BAINES.

ORCHIDS FROM SEED.

IN *THE GARDEN* (p. 54) reference is made to raising *Odontoglossums* from imported seeds, a matter I was pleased to see

noticed, as I believe in the near future Orchids will be extensively raised from seeds. Those, however, who intend carrying out this branch of horticulture will have to give it their careful study first, and afterwards work for some definite purpose. It will give no satisfaction, and far less will it pay to raise Orchids from seeds that may be imported in any quantity from their native country. Nothing is easier than to get good seed-pods of *Odontoglossums*. I tried some years ago to cross *O. Alexandrae* with a good form of *O. triumphans*. The cross was made both ways, and I obtained good pods after waiting ten months from the time when the crossing was effected. The pods opened well, being quite full of seeds, which were sown in many different ways in the cool house, but not a plant appeared, although, as regards the places where they were sown, they were not disturbed for two years. As I do not know of any Orchids of this genus having been raised in England at all, very probably it has not been done. Many have tried to hybridise the charming Moth Orchids (*Phalaenopsis*) in this country; but although there is no difficulty in getting pods of seed to



Cypripedium albio-purpureum.
A hybrid Lady's Slipper raised by Mr. Seden.

plants that have had their bulbs shorn off, as he describes, for, say, a couple of years to the next Manchester show. There is always to be met with there a gathering of growers of these plants whose judgment can be trusted. As I have already said, there is no necessity for the plants to be in bloom. If "J. S. W." will in this way give those who are interested in these plants an opportunity of judging of what are so far the results of his pruning,

the attempt to produce plants has hitherto been a failure—the seeds do not vegetate. It does not follow, however, that because we have been unsuccessful so far, we are always to be so. The attempt ought to be made again, and again until success crowns our efforts. It may be useful, perhaps, to relate my own first attempt, made some ten years ago, at raising hybrid Orchids. I was anxious to possess a plant of *Cypripedium*

Harrisianum, but the price at that time was more than I felt justified in paying. Mr. Dominy, however, was good enough, not only to tell me what the parents of this variety were, but also showed me how to cross them. We had both parents in flower at the same time, and I crossed them both ways, with the result that in less than twelve months we had ripe pods containing plenty of seeds. They were sown at once, merely shaking the seeds out of the pods on the surface of the pots in which the parents were growing. The young plants appeared in less than six months (for Cypripediums vegetate sooner than some other Orchids). The tiny plants clung to bits of charcoal, or attached themselves to roots that were above the surface. They also sprang up among the Moss where it was not too thick. It was nearly twelve months before any of the plants were ready to be pricked off in small pots, but they grew rapidly afterwards, and in less than six years from the time of hybridising the flowers we had strong flowering plants. I learned, too, that the best varieties were produced when *C. barbatum* was the pollen parent. Besides hybridising Orchids to obtain new varieties, it might sometimes be desirable to save seeds from some very rare choice species set with its own pollen. It is well known that there are some Orchids that have been sold at prices for many years such as placed them beyond the reach of all, but the very wealthiest. Cypripedium Spicerianum, for instance, it might be desirable to cross some other species with the pollen of this, but if good plants of it are to be sold at fifty or a hundred guineas for a number of years, surely it would pay to raise good flowering plants of itself; being a distinct species it would undoubtedly come true from seeds. Mr. Seden has been good enough to furnish me with a list of all the cross-bred Orchids which he has raised during the last fifteen years. Where Mr. Dominy left off Mr. Seden began, and the list, with the parentage of each hybrid given below, testifies to the success which so far has attended his efforts. The list may be useful also, inasmuch as it will show others desirous of working in the same field what has been done during those years.

	Seed parents.	Pollen parents.
Cattleya Chamberlaini	C. Leopoldi	C. D-wiana
Mardelli	C. speciosissima	C. devoniana
Mastersonie	C. Loddigesii	C. labiata
fausta	"	C. exoniensis
alba	"	"
aurea	"	"
crispa	"	"
delicata	"	"
radicans	"	"
superba	"	"
Calanthe Sedeni	C. Veitchii	C. vestita
Chysis Cheloni	C. bracteescens	C. aurea
Sedeni	C. Limminghi	C. bracteescens
Cypripedium Sedeni	C. Schlimi	C. longifolium
Marshallianum	C. venustum	C. concolor
selligerum	C. barbatum	C. levigatum
major	"	"
euryandrum	"	C. Stonei
tessellatum	"	C. concolor
porphyreum	"	"
enanthum	C. Harrisianum	C. insignie Maulei
supericillare	C. barbatum	C. Veitchii
marmorophyllum	C. Hookeri	C. barbatum
porphyreum	C. Rosii	C. Schlimi
calanthum	C. biflorum	C. Lowi
porphyrospillum	C. Lowi	C. Hookeri
vernixium	C. argus	C. argus
Morganie	C. Veitchii	C. Stonei
calurum	C. longifolium	C. Sedeni
grande	C. Rozcii	C. caudatum
nifens	C. villosum	C. insignie Maulei
pycnostemum	C. venustum	"
lucidium	C. villosum	"
Dendrobium endocha-	D. japonicum	D. heterocarpum
ris	"	"
Rhodostoma	D. Huttoni	D. sanguinolentum
splendissimum	D. heterocarpum	D. macrophyllum
micans	D. Wardianum	D. bitumiflorum
Lelia Ramee	L. cinnabarina	L. Pilcheriana
Sedeni	Cattleya superba	L. devoniana
Philidiana	A. eleanora	"
M. ambilis	M. Vetchiana	"
Phajus irratus pur-	P. grandiflora	Calanthe Veitchii
pureus	"	"
Zygopetalum Sedeni	Z. maxillare	Z. Mackayi

It may be well to state that Cattleya fausta and the six distinct forms of it were all raised from the produce of one seed-pod. Since Mr. Seden

handed me the above list in November last, Messrs. Veitch have exhibited Cypripedium microchilum, a cross between C. Druryi and C. niveum. A new Lelia has also flowered at Chelsea, a cross between L. purpurata and Cattleya gigas, and has been named Lelia callistoglossa; both have been raised by Mr. Seden. J. DOUGLAS.

CYPRIPEDIUM ALBO-PURPUREUM.

THE annexed illustration represents one of the finest hybrid Cypripediums raised at Messrs. Veitch & Sons' nursery by Mr. Seden, who obtained it from C. Schlimi and C. Domini, the latter, itself a hybrid, being the pollen parent. There are now four hybrid Lady's Slippers which wear a family likeness; these are the now well known C. Sedeni, C. calurum, C. porphyreum, and the one under notice, the flowers of which are a good deal larger than those of the lovely C. Sedeni. They are whitish with a purplish tinge on the borders of the lip with many spots of the same colour under it. The sepals have a slight purplish (pinkish) tinge on their borders. The petals are purplish and twisted. The ivory whiteness of the incurved rim of the pouch contrasts beautifully with the prevailing hue of the flowers. It has been exhibited on several occasions, but is not yet widely distributed.

Orchids in flower at Dr. Paterson's, Fernfield, Bridge of Allan:—

Chysis Limminghi	Oncidium serratim
Camaretia purpurea	Kramerii
Cypripedium caudatum	Wettoni
c. roseum	flexuosum
barbatum	fulgens
b. superbum	Phalenopsis Parishii
Lawrencianum	Luddemanniana
Ho-kieri	Cattleya Mendellii (thirteen spikes)
Domini	Skinneri
Argus	citrina
Dayanum	Acerides Fieldingi
villosum	suavisimum
hirsutum	var. maculatum
caudatum	Maxillaria Harrisonie
roseum	Vanda Denisiana
Dendrobium thyrsoiflorum	suavis (Wingate's and other varieties)
Walkeriana (twenty-three spikes)	tricolor Patersoni
chrysotum	Angulosa Clowesi
Bensonie	Saccolabium gemmatum
Delousianum	Trichoplia lepidota
pulchellum	coccinea
Devonianum	Epidendrum bicoloratum
rimbarium oculatum	erectum
L. giganteum	rhizophorum
nobile	exaltum
Odontoglossum Rozeii album	crassifolium
veixillatum	prismatocarpum
Klabochorum	Vitellium majus
maculatum superbum	Lycaste Skinneri
Halli	macrophylla
membranaceum	Gongora atropurpurea
cirrhosum	Masdevallia brilla
Cervantesi	amabilis
Rossi majus	L'endeni
Pescatorei	igneae
Alexandria	Harryana coreulensis
triumphans	Veitchiana
Oncidium crispum	var. superba
concolor	Coleogyne odoratissima
insignium	Mesochilus sanguineum
spacellatum majus	A. aurantiaca

Masdevallia rosea.—The first to exhibit this new species was Sir Trevor Lawrence who showed a plant of it in flower at South Kensington last week from his garden at Burford Lodge, Dorking. It has a dwarf tufted growth and leaves broader in proportion than those of several other species. The flowers slightly overtop the foliage, being produced on slender stalks. In the plant shown two flowers proceeded from one leaf-stalk. The flowers are of moderate size, bright rose-pink within and darker on the exterior. This plant, we are inclined to think, has been somewhat overrated compared with other beautiful kinds which we possess. It gives us no new colour, and it remains to be seen what claim to merit it possesses.—W. G.

The Man Orchis in North Wales.—A statement has appeared in THE GARDEN lately that the Man Orchis is found wild in North Wales. It would be interesting to botanists to hear more

about it, and to know what plant is meant by the Man Orchis, and especially to have it identified by the editorial staff of THE GARDEN. The Man Orchis of British botany (Aceras anthropophora) is generally supposed not to be found within several counties' breadth of North Wales; but *Listera ovata* (Tway-blade), sometimes erroneously called the Man Orchis, is as common there as in most other parts of the kingdom. On looking for the passages to which I refer, I can only find on page 304 that Mr. Webster has the Bee Orchis and Man Orchis in flower in his garden; but I certainly recollect that in a former number it was said, I think on the same authority, to be a wild plant in the neighbourhood. I by no means deny it. It is not generally known that the Bee Orchis is wild in North Wales, but I have found two spots within ten miles of Llandudno in opposite directions in which it is abundant.—C. WOLLEY DOD, *Eggle Hall, Malpas.*

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

A GREAT bowl filled with Sweet Brier and single Poet's Narcissus fills the room with sweetness, and though there are in the same room a large *Gardenia* and a bouquet of *Stephanotis*, the Sweet Brier is the winner in the competition of sweet smells. A bunch of Parrot Tulips, some all yellow, some yellow flamed with scarlet, are in a tall Dutch jar; they are of high decorative value, brilliant in colour, and fine in form with their richly fringed and jagged petals tossed about in a lawless fashion, thrown across one another or flung right open; some have stalks standing stiffly upright, but often twisted about in a way that makes it easy to dispose them gracefully over the edge of the jar. An upright glass holds a large bunch of *Narcissus biflorus* with pale green foliage of the yellow Day Lily. Alpine Auriculas are valuable as cut flowers, lasting in good condition quite a week, and retaining their sweetness to the end. From their many varieties of colour many beautiful combinations may be made, such as pale yellow, delicate lilac and white, and lilac blotched with purple; another of tawny and copper coloured with crimson and deep maroon, observing that it is generally best to keep those together that have the same coloured central ring, whether white or yellow. A white China basket has blue Pansies, pale and dark from vigorous border sorts; the shoots of flowers and leaves are cut whole, and hold themselves much better than any arrangement of the flowers and foliage cut separately. With the Pansies are some long-stalked single blooms of *Clematis montana*, and a well-chosen spray of the *Clematis* with short-stalked flowers winds round the handle and droops over the front of the basket. A storm-broken branch of Apple gives material for filling a brass dish 15 in. across; the twigs of wide open flowers are in a large group towards the centre and one side, the rest is of the rosy buds and half-open flowers; between and among the blossoms, not stiffly arranged, but as if growing up here and there, are shoots of the highly polished and brilliant green young leaves of Ivy. From the greenhouse come blooms of a charming rose-coloured *Ixia*, Lady Slade; these are placed quite alone in a slender and fragile-looking Venetian glass. An oval silver basket is arranged with pale pink and rosy Indian Azaleas; these Azaleas are still among our most valuable pot plants.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Eunymuses.—The variegated Japanese varieties of *Eunymus* are among the best of the many introductions of late years that can be effectively used for flower garden purposes, not their least recommendation being that they are all but quite hardy. The two recent severe winters somewhat injured plants of them in this district,

but none were killed outright, and after such a trial it may safely be inferred that they will withstand our ordinary winters. The small-leaved kind, *radicans variegatus*, is, in habit of growth, half bushy and half climbing, and can therefore either be used as a covering for low walls and trellises, or with a little attention to trimming, be grown as a hedge. As a permanent edging plant to large beds cut and trimmed, as is usual with Box edgings, few plants are more suitable. The varieties *aureus marginatus* and *argenteus marginatus* are stronger growers, and have large and richly variegated foliage; the growth of both kinds is somewhat loose or straggling, a defect that is easily remedied by occasionally pinching out the points of the longest or unevenly developed shoots. Plants grown in bush or standard form make excellent and permanent centres for beds of high coloured *Pelargoniums* or dark foliaged plants, and for intermixing with bright green foliaged plants in the outer lines of shrubberies they are invaluable. They strike best from cuttings made of the well ripened wood of the current year's growth; hence autumn is the time to propagate them. Light sandy loam or peat, the cuttings well firmed in it, and the pots plunged in ashes in a cold pit protected from frost, are all that is needed to ensure a successful strike.

Bedding out.—With the exception of the most tender, such as *Coleus* and *Alternantheras*, all other kinds of summer bedding plants may now be planted, and in arranging them the less elaborate the designs and the quieter the colouring the greater and more lasting will be the enjoyment of the garden. Another thing to avoid in the arrangements is excessive formality or flatness; this is easily prevented by using at regular intervals over the beds such kinds of standard plants as will best harmonise with the other plants in the beds, such as, for instance, standard variegated *Abutilons* in a bed of scarlet *Pelargoniums* or the Fish-bone Thistle as a centre to a small circle of *Lobelias*, or standard *Fuchsias* in beds of dwarf foliaged plants. These examples will suggest others, the only point to be borne in mind in selecting these standards being, as I have said, that they contrast in both colour and habit with the plants forming the groundwork of the bed. *Yuccas*, Australian *Dracenas*, *Grevilleas*, tree *Sempervivums*, and *Acacia lophantha* are all suitable for this purpose. Taking into account the shortness of our summer season and the consequent transitory character of flower gardening when tender plants are used, every effort should be made to do without this section, or at all events to use them as sparingly as possible. Unfortunately, the rich chocolate colour which we get in *Coleus*, and the bright purple and orange in *Alternantheras*, are not to be had in hardy plants; hence, if we must have these colours, and they are all but indispensable, we have no choice in the matter. Another consideration to be taken into account when making these arrangements is the appropriation or association of various classes of plants together. There is to my mind such an inexpressible degree of incongruity in mixing, for instance, succulents with any of the ordinary kinds of bedding plants, that one marvels that such an error should ever be perpetrated. Used in moderate proportion to other kinds of bedding plants succulents form an interesting feature in summer flower gardens, but under no circumstances should they be mixed with *Pelargoniums*, *Petunias*, &c., but only with nearly allied plants such as *Mesembryanthemums*, *Kleinias*, *Echeverias*, and *Sedums*.

General work.—The tying up of plants in mixed herbaceous borders, weeding, and filling up vacancies in the same, thinning out and planting out annuals and biennials, such as *Stocks*, *Asters*, *Phloxes*, *Wallflowers*, *Pentstemons*, *Antirrhinums*, and *Aquilegias*, and the planting out of spring bedding plants and those that have been forced for cut flowers are operations all of which must now receive attention. Indoors the principal work is giving abundant space to sub-tropicals, and moving out to sheltered spots all those

that can safely be risked out, giving *Alternantheras* and *Coleus* full exposure to the atmosphere whenever the weather is favourable, and potting up the last batch of cuttings of *Coleus* and *Iresine*.

FRUIT.

W. COLEMAN, EASTON CASTLE.

Vines.—Now days are getting a nice length and the resting period is comparatively short, early-started Queens may be subjected to a higher temperature than has hitherto been advised, that is, assuming that very early fruit is wanted, and necessity leaves no choice, but it must be understood that express speed is not recommended or approved. To secure the greatest amount of good without doing much harm when plants are kept at 70° on cold nights, 75° when mild, and 95° after closing, they should be plunged with their heads close to the glass; some kind of covering, if only a shading blind, should be placed over the roof at night, and ventilation at this treacherous season should be confined to the apex of the house. If the fermenting beds are in good condition and the plants well plunged, root watering will not be a heavy item, but they must be regularly examined and supplied with a sufficient quantity of good liquid or guano water, and air moisture, so essential to the swelling of the fruit, must be secured by damping the walls, floors, and surface of the bed with the same, pure water being used for dewing the plants with after the house is closed for the day.

Successions that were shifted in March will now be growing freely, and will require careful watering and ventilation to keep them in good condition. A great number of Pine plants are much injured and often ruined by having too much water, by heavy syringing when the slightest dewing over would suffice, and by the barbarous practice of opening the front ventilators on a bright May morning, and so exposing the tender young growths to a cutting draught, when a moist, genial atmosphere would be better secured by keeping them closed and giving more air at the apex of the house. The temperature in this compartment may now range from 60° on cold nights to 68° when mild, and early ventilation, when the pipes are heated, will require attention; when the morning rise reaches 75°, gradually increase the day heat to 85°, and close in time for a temporary rise above these figures, with solar heat and moisture. If plants intended for starting in June have been kept dry and cool the opposite extreme of heat and moisture will cause the greater part of them to throw up. Bring the soil into a nice growing condition by the use of warm generous liquid, and feed the stem roots by forcing a little into the axils of the leaves with the syringe, but guard against excess, and defer overhead syringing until the plants are out of flower. Where hot-water pits are getting crowded and young plants require more room, a good fermenting bed, made of one-third manure and two-thirds Oak leaves with a deep Cucumber frame placed over it, will be found all that can be wished for the rapid propagation and growth of new stock.

Figs.—The fruit on early forced pot trees now ripening fast will be greatly improved in colour and flavour by full exposure to sun and light, as well as by a more liberal admission of air. The latter condition will naturally tend to a general lowering of the night temperature, which will do no harm provided it does not fall below 60°, and the maximum heat is secured once in twenty-four hours. Keep the trees clear of all useless spray, and pinch the points of strong shoots where there is no room for extension. Never allow the roots to feel the want of water, as, unlike all other fruit trees, the Fig when growing is furnished with an advancing crop in various stages of growth, which must be kept progressing. Syringe the stems and lower parts of the trees, and damp the floors every day, and after gathering all the fruit that is ripe, as I have previously directed, give the trees a thorough washing and shut up

with sun-heat at a temperature of 85° to 90°. Thin the fruit in succession houses, stop or cut out side shoots, and lay in leaders. Mulch with good manure, water and syringe copiously, and while ventilating freely through the early part of the day, see that the house is closed in time for solar heat to raise it to 85° on fine afternoons.

Vines.—Where late houses have been brought on in accordance with former directions, all the best winter and early spring kinds may now receive Muscat treatment until after the fruit is set, from 65° to 68° by night, and 80° to 85° by day, with a flush of sunheat after closing, will keep them well in advance of the season, and allow time for cooler night treatment, by the admission of more air when the Grapes begin to colour. If Hamburgs are not likely to be in flower when shy sitters require artificial fertilisation, a good supply of pollen may now be shaken into a box, which must be kept in a dry, warm place until it is wanted for use. Endeavour to keep the work well in hand in midseason houses in which the Vines are now making rapid progress. Remove all surplus bunches from free setting kinds, discontinue stopping during the time they are in flower, and take advantage of early morning and dull days for thinning out the berries as soon as those which are properly set show signs of taking the lead. When all the bunches are thinned, give the inside borders a thorough watering with tepid liquid, mulch well with good manure, and encourage robust growth by giving plenty of air through the early part of the day, and by closing with sun-heat and moisture every afternoon. Early Grapes now ripe, or approaching that stage, may have less fire-heat than they have hitherto received, but they must have sufficient to keep up a circulation of dry, warm air, and to prevent the temperature from falling much below 60° at night. Gradually reduce moisture, particularly towards night, but damp the walls and floors on fine mornings, and syringe the foliage copiously as the crop is cleared for the twofold purpose of cleansing it from dust and insects, and to induce a fresh break of laterals.

Peaches and Nectarines.—As the fruit in the early house approaches ripening be very particular in the selection of pure soft water for syringing with. Turn aside any leaves which interfere with the free passage of sun and light, and give more air on fine mornings when the roof lights can be let down without exposing the fruit to drops of rain, which bruise and spoil the delicate skin. Give inside borders the final watering, mulch with some dry non-conducting material, and litter the floors with sweet soft hay. Many people at one time used to suspend nets over the trees to catch the falling fruit, but, independently of the fact that they spoil every Peach which falls into them, they are always in the way, and unless the fruit is wanted for home use, every Peach and Nectarine should be gathered before they are dead ripe and in danger of rolling off the supports which have been placed under them. When the Peaches begin to soften maintain a dry, warm atmosphere with a constant circulation of air; retard if necessary by shutting off all fire-heat at night. Never wrench the fruit off the trees with the naked hand, as the slightest pressure produces a bruise, but with a pad of wadding in the left hand gently grasp it near the base, sever the stalk with a pair of Grape scissors, and place it on squares of silver paper spread out in shallow-padded baskets. Remove it to a dry, warm room to ripen, or pack it at once in soft, well-beaten Moss if intended to travel.

In succession houses the growth of wood and fruit is unusually rapid, and as the numerous operations will closely follow each other let good syringing and copious watering have the first care. If the roots are entirely under glass and the borders are well drained no one need be afraid of overwatering a healthy-growing tree, provided the water used is clear and its warmth is equal to the mean temperature of the house; neither need they allow it to carry more than a very small percentage

of surplus fruit to compensate for dropping. Where the roots are outside the drizzling rains we have recently had will have penetrated to the drainage, and all that is now needed is good mulching to keep in moisture and to draw the surface feeders up to the influence of solar heat. Follow up dis-budding, tying down, and thinning in late houses. Syringe well about 6.30 every morning, ventilate abundantly, and ply the syringe again after closing for the day.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Azaleas.—These are amongst the most accommodating plants we possess, for with sufficient stock and a suitable selection of kinds that have a natural disposition to bloom early, with others to follow and some that will bear being kept back, there is no difficulty in keeping up a succession from the latter end of the year until the middle of summer, but to do this it is necessary to vary the season of growth, encouraging the plants that bloomed earliest to make and complete their growth correspondingly early. Although this section of Azaleas will make growth and set their buds in an ordinary greenhouse temperature, still when so treated they make slow progress in gaining size, the wood being weak compared with that which is obtainable with a little warmth and a moist atmosphere; moreover, where considerable quantities of these flowers are wanted for cutting there is much gained by keeping them warm, as so managed the season's shoots attain double the length they otherwise would do, and can be used so much longer when cut, an advantage which those who have floral decorations to arrange cannot fail to appreciate. An intermediate temperature, with a moist moderately confined atmosphere, secured by not giving too much air, and this only for some six or eight hours in the day, is what they like. All hybrids of Indian and Chinese origin take more water at the root, especially whilst they are making growth, than most other hard-wooded plants would bear, and at the same time they ought to be freely syringed daily to keep down thrips and red spider. When those which flowered first have set their buds and got the current season's shoots well matured, they should be removed to a house or pit, where they can be given a plentiful supply of air, so as to be quite cool. Those that have recently bloomed should at once have the seed vessels picked off, and be treated in every way like those already described.

Epacris.—Such of these as after blooming had their shoots out well back, and have now made some growth, should be moved into pots a size larger, but it is well to bear in mind that none of the varieties can bear so much root-room as many things; they are very impatient of the soil getting too wet, a condition that is much more likely to happen in the case of large than in that of small pots; a 2-in. shift is quite enough for any that are already in from 6-in. to 10-in. pots. Epacris will do with peat a little closer in texture than some things; but it must have a liberal addition of sand in it, for if at all of a spongy character, so as to have a tendency to hold water, the roots are sure to perish. Pot hard, and do not give water sooner after potting than is absolutely necessary, to avoid which see that the roots are sufficiently moistened before potting. The liability which these plants have to die suddenly when they appear in the best of health and there is no apparent cause is in most cases attributable to too much water at the roots; they need to be allowed to get drier before water is given than Heaths. If the young soft shoots droop slightly previous to its being applied it rarely follows that much harm is done. A slight sprinkling with the syringe on the afternoons of bright days will be an advantage.

Cyclamens.—Young stock of these raised from seed sown last summer will now require especial attention. To bloom them well in fifteen or eighteen months after the seed is sown there

must be no time lost. The old method of managing these plants with cool greenhouse treatment was slow and unsatisfactory. The best results are obtained by keeping them growing from the time the seed germinates without rest in an intermediate temperature. Now, when the sun has got much power, they must not be fully exposed to it, or they will not grow kindly, the leaves never attaining their full size and being much more susceptible than they otherwise would be to attacks from red spider. See that the soil is kept pretty moist; any that were sown late and not yet removed from the pots or pans in which they were pricked out should at once be put into small pots. Plants that have done flowering should be got together and placed in a pit or house where they can be properly attended to with water; the system of drying them off is altogether opposed to their well-being. Means ought to be taken to keep them free from insects, so as to preserve the old leaves in healthy condition. By this means when the time comes for their pushing up a fresh crop of foliage they will be much more vigorous, and bloom again proportionately better.

Lapagerias.—These finest of greenhouse climbing plants are to some extent exceptional in their requirements. If grown in houses where any warmth is used further than is sufficient to keep out frost, they are excited to earlier growth and under such circumstances I have found the young shoots and leaves very impatient of exposure to the full force of the sun, which not unusually has the effect of stopping the shoots from attaining their full growth, and causing the leaves to be deformed. Any aspect seems to suit these plants better than the south, yet if in too dark a position they rarely flower, however strong they may be, so freely as when more favourably placed in this respect. Now, whilst the young growth is in its tenderest condition, a thin shade of some kind should be applied, and the soil should be kept well moistened, especially if the plants are grown in pots or tubs and the roots fully occupy the soil; but where small or medium sized examples have been recently turned out in beds of considerable extent the earth must not be made too wet, otherwise it will get into a soddened condition, under which the plants do not thrive. Syringe every afternoon, getting the water if possible well to the under sides of the leaves; if this is attended to regularly, thrips, to which these plants are so subject, will be kept down, an essential point, for though the hard texture of the leaves prevents their being killed outright, still the insects feeding on them shortens their duration—a sad mishap when used for covering back walls and similar places in conservatories, for which purpose Lapagerias are well adapted.

Heliotropes.—The small examples of these, such as are used for ordinary greenhouse decoration, are well enough in their way, but where quantities of these fragrant flowers are required for cutting late in autumn and during the early months of the year, and the houses are calculated to accommodate them, some large plants should be grown either planted out on a back wall, if such is available, or trained to a pillar, for covering either of which few subjects can be more profitably used, as grown thus they will yield a plentiful supply of flowers. Should the new large white variety, White Lady, prove equal in freedom of blooming to the old kind, which has hitherto not been surpassed for general usefulness, it will be an acquisition. Its large size and decided colour commend it for a trial.

Habrothamnus elegans and Cestrum aurantiacum.—These nearly allied plants do well on the back wall of a conservatory. The Habrothamnus is scarcely ever out of bloom, and the Cestrum flowers freely for a considerable time in the late summer and autumn. To do them justice they should be planted out, but if there is not room for this, they must have good-sized pots and be regularly supplied with manure water when their roots get full hold of the soil, otherwise the quantity of flowers forthcoming will be proportionately reduced.

Plumbago capensis.—Few plants are more effective for greenhouse walls or pillars than this; and where it can be planted out so as to allow of its getting strong, it produces abundance of its lovely pale blue flowers for several months at a time. It should be grown in pots until it has attained some strength, or else the soil gets out of condition before sufficient roots exist to take possession of it. For decoration in 6-in. or 7-in. pots this Plumbago is an excellent plant. The present is a good time to strike cuttings of it for this purpose, as they will get nicely established before autumn.

Large-flowered and fancy Pelargoniums.—It is well to see that plants of these come in now are free from aphides; if coming into flower are free from aphides; if not, they should be fumigated twice within six or eight days, so as to free them from these pests; for, if so affected with them when the flowers are expanded and fumigation has to be resorted to then, it will cause the blooms to drop in quantity. These, as well as Calceolarias now in flower, should be shaded from the sun, or their flowers will fall quickly. If a few cuttings of Pelargoniums are at the present time put in to strike, they will be good plants by the autumn, and will make large bushy specimens before the time of flowering next spring. Such cuttings can generally be obtained from the plants that are about to flower without waiting until the usual time of cutting down after they have done blooming.

Arum Lilies.—Plants of these that have been forced, especially if large, may now with advantage be split up into single crowns, putting some into pots to be grown on in them and planting the weaker portion out-of-doors. They will do well in ordinary soil in an open situation, and if a shallow trench is prepared for them it will be found to suit them. In this way they are easily kept supplied with water, of which in dry weather they can scarcely have too much; and so treated, they make more compact growth than in pots. In autumn they must be taken up and potted singly. They will flower in succession after the pot-grown examples are over, which latter are best for forcing early.

Fuchsias.—If the stock consists of early flowering varieties and others that naturally bloom later, there will be no difficulty in having plants of these in bloom from the present time up to late in autumn. Those not wanted to come in until considerably later should be no more exposed to the sun than is necessary to keep their growth stout, otherwise it is difficult to get them to grow much, so inclined are they to bloom after this time. Pinching the points once more of the shoots of the later portion of the stock helps to retard the flowering, but the plants so treated must have pots large enough to give them an increase of root room, or they will not bloom strongly. Let the whole stock be frequently well syringed. This is necessary to keep down both aphides and red spider, either of which will much interfere with their growth, as well as with the healthy appearance of the foliage.

Bouvardias.—In whatever way the young plants, struck from cuttings in the winter, are to be grown through the summer, in pots, or planted out in frames, they should be attended to in the way of stopping the shoots to prevent their getting long and straggling, studying the natural habit of the sorts grown; the close habit B. Vreelandi grows bushy naturally. Do not let any small stock of these suffer through confinement of the roots in little pots, as if this happens they get into a stunted state. Where there is a large conservatory to furnish, some of the old plants that have been cut back may with advantage be grown on to a considerable size, as if given plenty of root space, say 12-in. or 13-in. pots, and the points of the shoots pinched in once or twice between this and the end of June, they will make large bushes that will bear a profusion of bloom through the latter part of the summer, at which time independent of their always acceptable flowers, they will help to give variety at a season when blooming greenhouse plants are not plentiful.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

We are now planting early Celery, and also a kind of Fennel highly recommended by "Cambrian," who states that when well grown and earthed up like Celery it is a good addition to salad plants. Early Potatoes should now be carefully hoed and earthed up at once. It is said by many that when not earthed they are earlier. Should that, however, be so, which I doubt, the large quantity of green-ended tubers occasioned through not being earthed diminishes their value; therefore, I always earth up my Potatoes, and get them early, too. Fill up all vacancies in Seakale beds. What we use for this purpose are the roots of those taken up for forcing; cut them into 6 in. lengths and place them upright in pans or pots, and fill in with light soil; place them in a cold frame, and every piece will become a plant. Be careful to rub all the eyes away, but two. These root cuttings make fine strong plants during the summer. The first fine day go through Onions, Carrots, Parsnips, &c. My system is to use draw hoes instead of Dutch hoes, walking in one row and hoeing the other. In this way no footmarks are left, and all the weeds lie on the top of the ground; in fact, all hoeing here is done in this manner. Asparagus beds will be greatly benefited by a small sowing of salt on the surface. I never saw salt injure Asparagus after the tops appear. It, however, kills all seedling weeds, and keeps the beds clean for the summer. Scarlet Runners sow now in shallow drills 6 ft. apart, and cover with burnt refuse. Early Broccoli may be planted between each row when ready. Dwarf Beans (Osborn's and Canadian Wonder) may also be sown at once.

We had a terrific hailstorm on Wednesday evening, May 3, accompanied by loud peals of thunder and vivid flashes of lightning. I have taken special notice of all our fruit trees, but with the exception, perhaps, of a few Gooseberry bushes, I can see little harm done at present; doubtless some of the young fruit have been hit hard, and if so will be blackened; still, I live in hopes that but little damage has been done.

SOCIETIES.

ROYAL HORTICULTURAL SOCIETY.

MAY 9.

At this meeting the following plants were awarded first-class certificates:—

ONCIDIUM TETRAEPILOLUM.—A species having peculiar, fleshy, cylindrical foliage about 1 ft. in length. The flower-spikes, produced from the base of the leaves, are compactly branched, bearing a profusion of small, but bright yellow flowers. As shown, it is a highly attractive Orchid, and well deserved the distinction accorded it. Sir Trevor Lawrence.

PESCATOREA LEHMANNI.—This likewise came from Sir Trevor Lawrence's garden at Burford Lodge, Dorking. It is similar in habit of growth to other species. The flowers are large, of waxy substance, the interior white, streaked and pencilled with purple, while the singular labellum is covered with dense thick hairs. It is one of the most distinct of the genus in cultivation.

MUSCARI ARMENIACUM.—One of the finest of all the Grape Hyacinths, the flower-spike being large and dense, and the colour a clear azure blue. It is likewise valuable for being so late, coming, as it does, after the majority of other kinds are past. Rev. Harpur Crewe.

AZALEA RUBIFLORA FL.-PL.—An attractive Japanese shrub, having double rosette-like blossoms some 3 in. across, of a deep rose-pink colour. It proves hardly it will be a welcome addition. Messrs. Veitch & Sons.

RHOODENDRON FORTUNEI.—An extremely handsome species, having large loose trusses of flowers shallowly cup-shaped, about 3 in. across, and of a pleasing rose tint, a colour that contrasted beautifully with the luxuriant green

foliage. It was exhibited by Mr. G. Aslett, Warren Wood, Hatfield, under the name of R. Mrs. Chas. Butler.

DAVALLIA GRIFFITHIANA.—A very handsome Hare-foot Fern from Northern India. From a creeping rhizome furnished with whitish scales arise large-spreading, triangular fronds, of thick texture and finely divided. This elegant form will no doubt become popular. Shown by Mr. Howard, Southgate.

SCOLOPENDRIUM KELWAYI DENSUM.—A form of the very variable native Fern, *S. vulgare*. The plants, as shown in small pots, had more the appearance of globular tufts of Farley than Ferns, so dwarf and compact were they. We have never seen similar growth among Ferns. From Messrs. Kelway & Son, Langport.

CARNATION W. HOWARD.—A very fine variety of the tree section, having large flowers of fine globular form and of a brilliant cherry colour. It appears to be a very free bloomer, and is altogether an excellent variety. Mr. Howard.

ROSE ULRICH BRUNNER.—A second-class certificate was awarded to this new Hybrid Perpetual Rose, shown by Messrs. W. Paul & Son, Waltham Cross. The flowers are large and full, of a beautiful rich rose crimson colour.

MISCELLANEOUS EXHIBITS consisted of a small group from Messrs. Veitch, which included *Vandates*, with six fine spikes; *Cypripedium microchilum*, an interesting hybrid between *C. Druryi* and *C. niveum*; *Primula obovata*, the new Japanese *Primrose*, *Coronilla Emerus*, a dense growing shrub profusely covered with yellowish red blossoms; *Pratia angulata*, the little creeping New Zealand plant like a white *Lobelia*; a fine basket of *Azalea altaicalensis*, one of the best of all the early hardy *Azaleas*; *Astilbe Thunbergii*, a plant in the way of *Spirea Aruncus*; *Eurybia Gummii*, a showy shrubby Daisy from New Holland; and a few new *Gloxinias* named *The Czar*, *Purity*, *Nydia*, *Diadem*, and *Marmion*, all good varieties.

Mr. B. S. Williams, Paradise Nursery, Upper Holloway, showed a very fine specimen of *Gloneria jasminifolia*, covered with pure white blossoms; some excellently flowered plants of *Hydrangea paniculata grandiflora*, with huge heads of pure white bloom. These, with a few choice varieties of *Amarrilys*, made an attractive group. Among the latter those named *Edith* and *Firedy* were particularly fine in every respect, but most remarkable for their brilliant colour. A gigantic spathe variety of *Anthurium Scherzerianum* from the same firm was likewise a noteworthy plant.

CUT FLOWERS of *Dendrobium thyrsiflorum* and *Sobralia macrantha* were brought by Mr. Green from Sir George Macleay's garden at Pendell Court, Bletchingley, for which a vote of thanks was accorded. Pansies in fine variety and in excellent condition were exhibited by Mr. Perkins, Beckenham; amongst them was a new sort called *Ada Perkins*, a rich, deep purple kind. Some excellent seedling Carnations were shown by Mr. Duffield, Winchmore Hill, which on the whole were scarcely inferior to named kinds and embodied a great variety of colours. A sort named *Canary*, with soft, yellow flowers, from Mr. Freeman, Farnboro', was a conspicuous object.

A few bright things came, as usual, from Messrs. Cannell, notable among which was a fine collection of cut blooms of zonal *Pelargoniums*, flowers of a fine strain of *Mimulus*, called *Beauty* of Sutton, a new hybrid *Fuchsia* called Mr. Rundell, and blooms of some very fine double *Begonias*. A vote of thanks was accorded. A basket of *Myosotis* called *alpestris compacta* was shown by Messrs. Hurst & Son, though it by no means agrees with the true *M. alpestris*, which is scarcely more than 1 in. high.

Among new Roses shown by Messrs. Wm. Paul were four fine varieties named *Mdlle. Marie Garnier*, deep rose; *Violette Bouyer*, bluish; *Camons*, fleshy crimson; and *Queen of Queens*, pale rose. All these had large and full flowers, except *Camons*, which was remarkable only for its pretty colour. Mr. H. Bennett, Shepperton, showed a new hybrid Tea Rose named *Duchess of*

Albany. It is large and full, of a pleasing soft pink hue.

Fruit and vegetables.—A first-class certificate was awarded to Mr. Ledsham, Tarvin Road, Chester, for a new Broccoli called *Ledsham's Latest of All*. It has firm heads of moderate size and of good colour. Messrs. Veitch showed *Model Broccoli*, which is said to be very hardy and dwarf. Mr. Draper, Seaham Hall, Sunderland, sent what he called *Draper's Selected Broccoli*, which the committee thought good. A variegated leaved Broccoli came from Messrs. Hurst, which was considered valuable as a decorative plant. Some excellent samples of a Cucumber called *Selborne Rival* came from Mr. C. J. Salter, Selborne, Streatham, which, though good, were not considered superior to others in cultivation. Asparagus Kale, shown by Mr. R. Campbell, Oakmere Hill, Cheshire, which proved to be the *Purple Buda* or *Milan Kale*. Mr. May, Barnet, sent a Melon called *Duchess of Albany*, a large oval fruit netted and fairly well flavoured. Mr. Divers sent *Salt's Crimson Perfection Rhubarb*, an excellent sort, remarkable for its high colour, and several varieties of Apples, including *Norfolk Greening*, *Hanwell Souring*, *French Crab*, *Gooseberry Apple*, and *Golden Harvey*.

The general show on this occasion was held in the Western Arcade, the chief of the exhibits being from the Society's garden at Chiswick. The groups, some half dozen in number, consisted of about a hundred excellent *Calceolarias*, representing a high-class strain, large in flowers and truss, and varied as regards colour. A tastefully-arranged miscellaneous group consisted of small, but densely-flowered *Azalea* bushes, *Gloxinias*, white *Marguerites*, interspersed with *Palms* and *Maiden-hair Ferns*, forming a dense carpet, from which arose numerous tall white spires of *Saxifraga pyramidalis*, the whole forming a most attractive group. This was margined by alternate plants of the golden *Selaginella Kraussiana* and *S. Poulterii*. Another group had a pretty margin of *Saxifraga Wallacei* in pots, one of the prettiest plants for such a purpose that we could name. A collection, numbering some fifty kinds of species of *Pelargoniums*, was of exceptional interest, as it showed what diversity exists in this numerous family. Some huge specimens of *Rollison's Unique* and a scarlet form of it stood out prominently from all the rest. Among other noteworthy kinds were *Shrubland Pet*, *quercifolium*, *superbum*, *caucullatum*, also *P. zonale* and *inquinans*, said to be the parents of the hybrid races.

ROSES.—A grand display of dwarf pot Roses came from Messrs. Wm. Paul and Sons' nurseries at Waltham Cross. They consisted of about half a hundred well-grown plants, including some of the finest sorts, such as *Marie Baumann*, *Mdlle. Marie Rady*, *Francois Michelin*, *La France*, *Junio* (a fine plant). The snowy whiteness of the fine blooms of *Mabel Morrison* contrasted beautifully with the rich deep velvety crimson of the superb *Duchess of Bedford*, a *Waltham Cross Rose* and one of the best of new Roses of recent years. Among other Roses raised by Messrs. Wm. Paul and Son were *Masterpiece*, bright rose-crimson; *Lady Sheffield*, a glowing cerise, the blooms large and fine in shape; *Star of Waltham* and *Little Gem*, a pretty new Moss Rose with compact rosette-like blooms of a rosy cerise. This group of pot Roses was supplemented by half-a-dozen boxes of cut blooms equal in quality to those which one sees in July. Among them a large tray of about three dozen blooms of *Magna Charta* showing that superb Rose to perfection; noteworthy among the others were *Paul Verdier*, *Princess Marie Dolgorousky*, *Beauty of Waltham*, *Duke of Wellington*, *Crown Prince*, and *Dupuy Jamin*, all of which are excellent for early flower. A silver-gilt medal was awarded.

A collection of about nine dozen trusses of cut blooms came from Mr. W. Rumsey, Joyning's Nurseries, Waltham Cross; some of the finest among which were *Mdlle. V. Verdier*, *Niphetos*, *Marie Van Houtte*, *Marguerite Brassac*, *General Jacqueminot*, *Safrano*, *Isabella Sprunt*, and *Innocenta Pirola*. Awarded a silver Banskian medal.

A group of Japanese Maples, consisting of some thirty kinds, was shown by Messrs. Veitch from their Coombe Wood Nursery. These, for the most part, were varieties of the extremely variable *A. polymorphum*, exhibiting every variation of tint from the deepest sanguineous crimson to the most delicate tone of green, and also every degree of laciniation of the foliage from the thread-like leaflets of dissectum to almost entire or undivided leaves. The most remarkable kinds in this collection were among the dark-leaved sorts, septemlobum elegans, atro-purpureum, elegans purpureum, linearilobum atro-purpureum, latifolium atro-purpureum, and sanguineum. Among the green-leaved type were palmatifidum, decompositum, flavescens, septemlobum. Other species included *A. japonicum*, with foliage of a very pale tone of green, crategifolium and its variegated form. Awarded a silver flora medal.

A large collection of Pyrethrums, both double and single, came from Messrs. Kewley & Sons, Langport, who showed this beautiful hardy flower to perfection. About fifty double kinds were shown, and about a score of single sorts. Among the latter there were some beautiful flowers, varying in colour from pure white through pink to the deepest crimson. A selection should include Romulus, Demo, Themis, Rusticus, Melon, Damia, Dyris, Dacius, and Carbo. A representative selection of the doubles are, among crimson and pinks, *J. N. Twedy*, Sefton, Nemesis, Progress, Gloire d'Italie, Hobart Pasha, Duchess of Edinburgh, and Captain Nares; and among light coloured kinds, Niveum plenum, Album roseum, Mont Blanc, Vaneu, Cleopatra, and Solferate. A silver Banksian medal was awarded.

For an extensive and well grown collection of Calceolarias, numbering about a hundred plants, a silver medal was awarded to Mr. Salter, Selborne, Stratham. These added largely to the attraction of the show, and represented a superior strain.

Scientific committee.—Sir J. D. Hooker in the chair. Rhododendrons.—Mr. Mangles exhibited some interesting species and hybrids as follows: *R. nilagiricum*.—In the *Botanical Magazine*, 4381, *R. Campbellae*, which comes from Nepal, is described under this name. *R. Fortunei*.—remarkable for having seven petals and usually fourteen stamens. It is pink with corrugated petals, bearing a yellow centre. It has no spots and is regular in form. *R. bigener*, the original hybrid of Dean Herbert, between *R. maximum* and *Anales viscosa*. It has glaucous foliage, a pink corolla with wrinkled edges. *R. californicum*, *Botanical Magazine*, 4863.—this is said by Professor A. Gray not to stand the climate on the east side of the States, but has proved to be hardy with Mr. Mangles. *R. calophyllum*, a true species from Rhotan, white and sweet scented. It produces many varieties. *R. Edgeworthii*.—which is an epiphyte, having leaves grow above and tomentose below. It is the parent of many beautiful kinds. *R. blandfordioides*, a most remarkable form from Sikkin, resembling the flowers of the genus *Blandfordia*. It bears short, tubular, and scarlet corollas. A species received from Mr. H. Hudson, near Cork, apparently resembling both *R. Roylei* and *R. cinnabarinum*. Laraches attacked by larvae.—Sir J. D. Hooker alluded to the report of Mr. Macleachlan read at the last meeting, who considered the injury to be local and transitory, and remarked that he had received communications to the effect that whole trees had been stripped of their foliage, and that the disease was really much more extensive than had been supposed. Fungus in dilute sulphuric acid.—Mr. W. G. Smith exhibited a specimen of the vinegar fungus (*Penicillium crustaceum*) growing in dilute sulphuric acid. Sir J. D. Hooker suggested that it should be ascertained what nitrogenous substance was present in the acid, as the acid alone could not support its life. Proliferous Mushroom.—He also exhibited a specimen in which one pileus was inverted and adherent to the summit of a Mushroom growing ordinarily. Foliage injured by the gale.—Dr. M. T. Masters exhibited specimens of leaves injured

in various ways by the late severe gale, which by destroying the growing parts showed at a glance how different leaves were differently developed. The question was raised whether a generally received idea of salt being the cause was true, but it was thought that, excepting in certain localities, the destruction was due to the duration and the coldness of the gale. Mr. Mangles observed that Beeches withstood the blast much better than Oaks. Plants exhibited.—Rev. H. H. Crewe exhibited *Muscari armeniacum*, a species believed to come from Trebizonde, a species of Scilla from the Escorial Mountains, the old but little grown white Persian Lilac and *Pæonia Witmanniana*. Mr. G. F. Wilson exhibited a terrestrial Orchid which was referred to Kew for the purpose of identification.

Lecture.—The Rev. George Henslow took Maples as the subject of his lecture, as Messrs. Veitch exhibited a fine series of new forms from Japan, remarkable for their coloured and dissected foliage. He first called attention to the fact that Maples abounded in the Miocene epoch, nineteen species having been found fossil at Quingen, near Lake Constance. They were even attacked by a fungoid disease much resembling the *Rhytisma acerinum*, which forms black spots on the Sycamore. Maples were well known to the ancients for the value of their wood. Theophrastus, Virgil, and Ovid often alluded to the markings on the wood, for which it was highly prized, as it is now. Maples are found in Europe, North America, North India, and Japan. Of the European, the common Maple (*Acer campestre*, L.) is a well-known British shrub or small tree, the wood of which is valuable for cabinet work, and makes one of the best charcoals. *A. pseudo-Platanus*.—L. (the Sycamore).—The wood is also valuable for cabinet work, while the knotted roots are used for inlaying. The sap has been made into sugar and wine in the West Highlands of Scotland. Of American species, *A. saccharinum* (the Rock Sugar or Bird's-eye Maple) is one of the most important. It was introduced here in 1735. The timber is valuable, and used instead of Oak where the latter is scarce. The fibres sometimes show peculiar arrangements, being undulated, like those of the Curled Maple (*A. rubrum*, the red flowering or scarlet Maple), or in spots, which give the name of Bird's-eye. It forms excellent fuel, and the ashes are rich in potash. Sugar is extracted from the sap by boiling, the flow of sap being peculiarly sensitive to climatic changes. Of the Japanese Maples lately introduced, *Acer palmatum* or *polymorphum* is one of the most important, being remarkable for the great variety in the form of the leaves as well as colour. It was first introduced in 1822, but for the beautiful varieties named *ampelopsisifolium*, *atro-purpureum*, *dissectum*, &c., words which describe the various characters, we are indebted to Mr. J. G. Veitch and Mr. C. Maries, and the species *Acer distylum* and *A. carpinifolium*, both from Japan, are remarkable for the leaves being without lobes, the usual number of lobes being five, though they vary from three to seven. The last named species much resembles the Hornbeam, whence is derived its specific name. Another called *crategifolium*, as well as a variegated form, brought by Maries, is like the Hawthorn. Several other beautiful forms were exhibited, introduced by Mr. Maries, but which have not yet received special names. They will undoubtedly become favourites for shrubberies.

NATIONAL AURICULA SHOW.

NORTHERN DIVISION, AT MANCHESTER, MAY 2. THIS was considered generally to be one of the best exhibitions held in the north for a long time past; the flowers were on the whole good, the exhibitors numerous, and the competition keen. The Rev. F. D. Horner, the hon. secretary to the society, did not exhibit, and has not exhibited for a few years past, but all the leading growers in the north were present. The plants were arranged on tables round the sides of the spacious Town Hall, and, we were pleased to note, in better order and regularity than hitherto.

In the leading class for six varieties there were nine exhibitors. Mr. William Bolton, Warrington, being first with very good and even examples of Prince of Greens, green edged; Lancashire Hero, George Lightbody, and Alexander Meiklejohn, grey edged; Frank Simonite, white edged and Mr. Douglas, blue self. 2nd, Mr. H. Wilson, Halifax, with Prince of Greens and Colonel Taylor, green edged; Alexander Meiklejohn and George Lightbody, grey edged; John Simonite, white edged, and Sapphire, blue self. 3rd, Mr. J. Booth, Failsforth, Colonel Taylor, green edged; George Lightbody, Alexander Meiklejohn, and Dr. Horner, grey edged; Acme, white edged; and Lord of Lorne, self. 4th, Mr. Samuel Barlow, Stakehill, with Lovely Ann, green edged; Lancashire Hero, a very fine example, indeed, and Frank Simonite, grey edged; and Erebus and Ringdove, two of the Rev. F. D. Horner's first dark selfs. 5th, Mr. H. Pohlman, Halifax, with some good flowers, including a splendid Alexander Meiklejohn. 6th, Mr. B. Simonite, Sheffield. Two other prizes were awarded. In the class for four varieties there was a good competition also, the first prize going to Mr. Henry Wilson, Halifax, who had Prince of Greens, green edged; Alexander Meiklejohn, grey edged; Acme, white edged; and Ringdove, self. 2nd, Mr. Shaw, Bury, with Alexander Meiklejohn, George Lightbody, and Dr. Horner, grey edged; and Ellen Lancaster, self. 3rd, Mr. H. Pohlman, Halifax, with Colonel Taylor, green edged; George Lightbody, grey edged; Acme, white edged; and Topsy, self. Mr. W. Bolton, Warrington, came in fourth with Lancashire Hero and George Lightbody, grey edged; Acme, white edged; and Topsy, self. In the class for two varieties a large number of plants were staged, Mr. Robert Lord, Todmorden, coming in first with Colonel Taylor, green edged, and George Lightbody, grey edged; 2nd, Mr. J. Beswick, Middleboro', with Anna, green edged, and C. J. Perry, self. 3rd, Mr. W. Bolton, Warrington, with Alexander Meiklejohn, grey edged, and Ringdove, self. 4th, Mr. J. Booth, Failsforth, with Dr. Horner, green edged, and Ellen Lancaster, self. In the class for pairs, shown by maiden growers, some fairly good flowers were exhibited, but nothing of special merit.

In the classes for single flowers there was, as usual, a large number of specimens. The premier green-edged flower was Lancashire Hero, in its green form, shown by Mr. H. Pohlman; then came in order of merit Colonel Taylor, Talisman, Mayflower, an old, but bright looking variety; Laurel, also a bright looking and attractive flower; George Lightbody (Trail's), &c. In the grey-edged class the premier flower was a superb Alexander Meiklejohn, shown by Mr. H. Pohlman; then came in order of merit the same variety, George Lightbody, Lancashire Hero, Samuel Barlow, one of Mr. B. Simonite's new greys, and Dr. Horner's. In the white-edged class the premier flower was Acme (red), shown by Mr. R. Lord; then came Richard Heady, in a white form, and very attractive indeed; John Watson, Acme, Frank Simonite, Catherine, and Trail's Beauty. In the class for selfs, the premier flower was Mr. Douglas, a fine blue self, from Mr. B. Simonite; then followed C. J. Perry, Mr. Sturrock, Ellen Lancaster, Lord of Lorne, and Lord Clyde.

The matter of selecting the premier flower was one of some difficulty. Eventually a "dead heat" was recorded.—Lancashire Hero, shown by Mr. Samuel Barlow, and Alexander Meiklejohn, shown by Mr. H. Wilson, being declared equal in point of merit. Two very fine flowers marked "not for competition" attracted much attention. They were Richard Heady, grey-edged, a superb specimen sent over from Dublin by the Rev. F. Tymons, of Drumcondra, carrying a truss of twelve pipes, and to which a first-class cultural commendation was unanimously awarded; and one of the Rev. F. D. Horner's new selfs Sapphire, also with twelve pipes. Richard Heady was undoubtedly the premier flower in the show, so perfect was it in all its parts.

In the classes for alpine varieties there was a good competition, but the judgment in a few in-

stances was scarcely satisfactory. The best four plants came from Mr. J. Booth, Failsworth, and consisted of George Lightbody, Elcho, Queen Victoria, and Brilliant. 2nd, Mr. Adams, with Queen Victoria, Diadem, Mrs. Llewellyn, and Colonel Scott. 3rd, Mr. Prescott, with Neatness, Queen Victoria, Diadem, and Seeding. 4th, Mr. Shaw, with Conspicua, John Leech, Diadem, and Spangle. The premier yellow-centred alpine was Diadem, from Mr. Booth; then followed the same; then a seedling laced variety, Colonel Scott, Spangle, and Diadem. The premier white-centred variety was a seedling laced flower from Mr. H. Pohlman; then followed Elcho, another laced variety; Sunset, a pale coloured flower; Tennial, and George Lightbody.

In the Polyanthus class there was a good competition, and the custom is to keep the red ground flowers distinct from the dark ground varieties. The best black ground plants came from Mr. James Beswick, Middlesboro', who had Lancashire Hero, a second-rate variety; Exile, and a good dark seedling in the way of Cheshire Favourite, but paler in the golden centre. 2nd, Mr. James Bolton, with Lord Lincoln, in excellent form; Exile, and a very promising seedling named Zoe. 3rd, Mr. S. Barlow, with Beauty of England, Exile, and Harbinger, one of Mr. Barlow's new seedlings. In the class for three red grounds Mr. Barlow was well ahead with Model and Fire-fly, two good seedlings raised by himself; and the true form of Cox's Prince Regent. 2nd, Mr. J. Beswick, with George the IV., Lancer, and a seedling. 3rd, Mr. Bolton, with President, George IV., and a seedling. In the class for the best red ground varieties, George IV. was first and second, then came Model, Cox's Regent, and seedlings. In the black ground class, Lord Lincoln was first, then followed Exile, Lancashire Hero, Cheshire Favourite, John Bright, and President.

Mr. Barlow was the only exhibitor of twelve fancy Auriculas, and received a first prize for a meritorious collection. Mr. W. Brockbank, was first with twelve Fancy Polyanthus, and also with twelve Primroses.

In making something akin to a summary of the flowers staged, it may be remarked that the green edges were, as a rule, poor by comparison, the best being Prince of Greens, Colonel Taylor, Talisman, Lancashire Hero in its green form, and Laurel; grey edges—George Lightbody, Alexander Meiklejohn, Lancashire Hero, John Waterson in its grey form, Sykes' Complete, shown in good condition, and Queen Victoria; white edges—John Simonite, Sealing Beauty, Acme, John Waterson, Trail's Beauty, True Briton, and Catherine; self—Ringdove (Horner), Mr. Douglas (Simonite), C. J. Perry, Erebus (Horner), Garibaldi, Mazzini, Topsy, Pizarro, and Sapphire (Horner).

THE GREAT SPRING SHOW AT VIENNA.

THIS was held from April 21 until April 24. It was chiefly remarkable for large Palms, Cycads, and tree Ferns. The Imperial Gardens, Schönbrunn, occupied a large space with huge Palms, tree Ferns, Banksias, Philodendrons, Anthuriums, grouped with Heaths, Epacris, Azaleas, forced Tea Roses, and some plants of Clianthus Dampieri finely in bloom. Orchids in flower, hung in prominent places, gave the whole a very natural appearance. From the gardens of Baron Nathaniel Rothschild came a group of Palms, amongst which were *Areca rubra*, *Acanthopanax Herbsii*, *Kentia Forsteriana*, and tree Ferns. Associated with these were also *Anthurium Andreanum*, with three good flowers; some Orchids, noteworthy amongst which were *Phalenopsis grandiflora*, *Odontoglossum Andersoni*, *Trichopilia crispata*, and *Angreum sesquipedale*. From the same establishment came also a collection of hybrid *Coleuses*, possessing very gay colours; likewise several pots of trained *Marguerites*, *Tropeolum azureum*, *Cineraria amelloides*, and *Cornflowers*. From the gardens of Prince Lichtenstein and Prince Schwarzenberg came groups of miscellaneous fine foliage and flowering stove plants. The gardens of Count

Harrach were represented by a collection of Azaleas and Rhododendrons, and especially by a large specimen of *R. Falconeri* in full bloom. A group of *Crotons* from Ritter von Neuberg's garden formed quite a striking feature. From the same place came also a collection of *Alocasias*, amongst which the most attractive were *Colocasia Neoguineensis*, *Alocasia Thibautiana*, *A. zebrina*, and *A. macrorhiza* fol. var. Mr. Forster, of Lehenhof, showed a plant of *Rhododendron Forsterianum* in excellent condition. From the Imperial Gardens of Innsbruck came a collection of Tyrolean alpine, which were much admired. In the garden a collection of the hardier Palms for open-air decoration during summer and autumn contained good specimens of *Chamerops excelsa*, *C. humilis*, *Phoenix dactylifera*, *P. leonensis*, *P. canariensis*, *P. sylvestris*, *Pritchardia filifera*, and *Dasyliro longifolium* and *glaucophyllum*. Mr. Roetzl, from Prague, sent drawings in natural size of *Nepenthes Northiana*, *N. Rajah*, *Cattleya aurea*, *Dowiana*, and *Andreana*. LOUIS KROPATSCH. *Laxenburg.*

Hardy flowers at the Auricula show at Manchester.—On this occasion Mr. W. Brockbank staged a small, but select collection of plants of a particularly interesting character. Foremost was a basket of some of the newer forms of *Primula Sieboldi*, such as *lacinata purpurea*, *Mauve Beauty*, &c., together with some finely coloured examples of the type. There were also *Orchis mascula* in fine bloom; a charming evergreen *Candytuft* of a hybrid character named *Iberis gibraltaria hybrida*, the result of a cross between *I. gibraltaria* and *I. corifolia*, and decidedly intermediate between the two, the flowers about the size of those of the latter, and of a pale lilac in colour; the rich blue *Gentiana acaulis*, *Trollius napellifolius*; a very fine form having well coloured orange-yellow double flowers; *Campanula alpina*, with its downy foliage and deep blue flowers, a plant that is seldom met with; *Primula japonica alba*, a very pure white form of fine quality, probably one of the best yet seen; the pretty purple *Viola Munbyana*, which makes a charming pot plant; and the interesting *Salmouskia alpina*. During the day groups of visitors gathered about these plants, and it is always noticed that when well grown and shown they command great attention.—R. D.

THE ASPARAGUS COMPETITION.

ALL entries for this should be made to Mr. A. F. Barron, Royal Horticultural Gardens, South Kensington, not later than May 19. Exhibits received up to 8 o'clock on the morning of Tuesday, May 23.

The following are the prizes offered for the competition of the present year, which will take place in the Royal Horticultural Gardens at South Kensington on Tuesday, May 23:—

PRIZES FOR GARDENERS IN PRIVATE PLACES, AMATEURS, AND OTHERS NOT GROWERS FOR MARKET.

For the best bundle of *Asparagus* grown by the exhibitor: 1st prize, £4; 2nd, £2 10s; 3rd, £1 10s; 4th, £1. The bundle of *Asparagus* is to consist of eighty heads. Prizes will not be given where, in the opinion of the judges, there is no merit. The *Asparagus* must be free of earth, and the bundles will be opened by the judges in all cases where they think it well to do so. No imperfect or "double" heads will count.

For the best fifty heads grown by the exhibitor, £2 10s; second prize, £1 10s; third prize, 15s.

For the best twenty-five heads grown by the exhibitor, £1 10s; 2nd, £1; 3rd, 10s.

PRIZES FOR MARKET GROWERS.—For the market grower who shall exhibit the best three bundles, grown by the exhibitor, each containing one hundred heads, £5 5s. This prize is offered by Sir Henry Thompson. Second prize, £3 3s., offered by Samuel Spalding, Esq.

The Tonga plant.—In reference to the interesting article in THE GARDEN for last week, entitled "The Tonga plant," we desire to make a few observations. When the medicine was first brought to us it consisted of chips of bark and wood with fragments of leaves, and, supposing all of them to be portions of the same plant, we sent a sample to the authorities at Kew, asking if they could determine the plant from which it was derived. Subsequently, we learned that parts of several plants entered into the composition of the medicine, and it no longer seemed surprising that our reference to Kew had proved fruitless. More recently we have learned from the gentleman who sent the remedy to England that the extraordinary relief which he had derived was only obtained by a mixture of native remedies, and this mixture it was which he sent, in the ordinary form of the native medicines, and to the fluid extract of which we applied the word "Tonga" as an arbitrary name. From these facts it is evidently inexact to speak of the Tonga plant. Several plants enter into the composition of the remedy, and we have no information as to whether amongst them are either of the plants indicated by Mr. Holmes and Mr. Brown.—ALLEN & HANBURY, *Plough Court, Lombard St.*

OBITUARY.

WE have to record the death on the 8th inst. of MR. ANTHONY OLIVER, late gardener to the Earl of Ravensworth, at Eslington Park, Northumberland. He had reached the ripe old age of eighty, and until within the last year or so had taken an active part in superintending the place where he had been head gardener for the long period of fifty-seven years. He was the oldest gardener in the district, and was widely known and respected. His practical acquaintance with the best kinds of fruits and vegetables enabled him to be of much service to cottagers and others; so much so, that his name became a sort of household word amongst them. In the course of the long period during which he served the Ravensworth family, gardening became, as it were, revolutionised; and it was interesting to hear the old man describe the difficulties that had to be overcome before the first flower shows in the north of England could be started. At these, when once set agoing, he was a regular and successful competitor.

Dracena Goldleana (Velp).—We are not aware of any change having been made in the generic name of this plant.

Blue Hydrangeas.—How can I turn the colour of pink *Hydrangeas* into blue? If I use oxide of iron, when should I commence, and what quantity should I give?—W. W.

The late storm has greatly injured fruit trees; standards hereabouts are quite black, and look as if they had been burnt; the ground underneath them too is covered with fruit. In the case of Rose trees every leaf has been stripped off; Peas are also very much damaged.—G. T., *Hounslow.*

Names of Plants.—Mrs. M. W.—*Hesperis tristis*.—*E. D.*—1, *Tiarella cordifolia*; 2, *Cynoglossum sempervirens*; 3, *Geum rivale*; 4, *Lamium maculatum*.—*Amg.*—*Boronia elatior*.—*H. L.*—The *Alyssum* you send is of a paler yellow than usual, but we cannot say if it is the compact variety of *A. saxatile* without seeing the entire plant.—*G. Meirhead*.—*Genista precox*, supposed to be a hybrid, *G. A. B.*—*Dendrobium chrysotoxum* (the yellow); *D. pulchellum*, apparently *Maxillaria albo-lutea*, *Cardamine pratensis* fl.-pl.—*T. E. F.*—*Franciscus eximia*.—*T. B.*—Cannot name without flowers; 2, apparently a variety of *Lelia purpurata*; 3, *Adiantum Sancta Catharina*.—*H. L. W.*—*Cynoglossum sempervirens*, propagated by seed or division.—*Mrs. S. W.*—The Holly is *Ilex aquifolium platyphyllum*; the other, *Eucyamus radicans variegatus*.—*W. R. M.*—*Zygopetalum Mackayi*.—1, apparently *Sarcocolla densiflora*; 2, *Lycaste fulvescens*; 3, probably *Chysis bracteata*, but cannot name without further material; 4, *Aceris Fieldingii*; probably the *Dendrobie* you send is *D. pulchellum*.—*W. R. M.*—*Diplazium glutinosum*.—*G. Fm.*—Apparently *Tamarix gallica*.

No. 548. SATURDAY, MAY 20, 1882. Vol. XXI.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

SPRING NOTES.

GARDENS where spring flowers are largely grown have afforded a rare treat this season. Never do I remember so beautiful a show as some of the gardens in this neighbourhood present. Our soil is very light, and the absence of rain in the early season made the plants very floriferous. Recently we have had an abundance of rain, which has brought out the flowers quickly, so that all is blossom of the loveliest colours. Some of the border plants are not so good as usual from the same causes. The Globe flowers are much smaller, and so are the Columbines, some of which are very poor. *A. glandulosa* has not been suited by the dry season, and is very dwarf. On the other hand, the Wallflower tribe is in splendid order, and especially *Cheiranthus ochroleucus*, which we use largely, is one mass of the purest lemon-yellow and exceedingly effective. The Geums are also unusually fine, but I fancy that some of the double scarlets have reverted to the single form, probably owing to the dryness of the soil this season. The *Violas*, again, are exceedingly good, being completely covered with flowers.

There are a great many noteworthy plants in bloom on the rockeries. *Erinus alpinus* is a lovely gem, with lilac-pink flowers, and the variety *E. hispanicus* is lovelier still, its flowers being of a bright pink. These and *Erinus alpinus albus* we have raised from seed in quantity, and they are very effective. My friend, Mr. Wolley Dod, writes that the *Trilliums* have not done well this year, but we never had them better than this season. They like a shady place, and should not have full sunshine for more than half the day. *Onosma taurica* is beautifully in flower. One plant carries about thirty heads of bloom of the loveliest yellow. We pinned all the branches down last autumn, and each struck root and sent up a flower-stalk for the next season. *Viola Munbyana* is another rockery gem. It is literally covered with blossoms of blue, the upper petals a shade darker than the lower ones. This *Viola* will probably be found to hybridise well with our ordinary *Violas*, which are fast becoming Pansies in size and habit. *Phyteuma comosum* is coming into flower. One plant has about half a dozen trusses. It is said to be difficult to manage but seems to grow well between broken limestone cubes. Our plants have grown where they are for three seasons and flourish. The *Edelweiss* is the same. We have a plant now flowering for the third season and this year it carries nine trusses of bloom. This plant is quite adapted to our climate. The only requirement with these true alpine is to keep the winter rains and fogs from them. To attain this we use three pegs, in two of which a deep notch is cut about 3 in. above the plant, and the third peg is so arranged as to carry a bit of glass, which rests upon it at top, and just clears the plant, the bottom edge resting in the notched pegs. This keeps out the rain, but does not rob the plant of the moisture which it needs at its roots. In its native habitat the snow forms the cover which we thus imitate with our sheet of glass. The *Androsaces* all need this treatment in winter. *Ramondia pyrenaica* is another fine alpine which appears at home in England. We have a large plant which is four years old, and which is again flowering profusely. We follow the same treat-

ment with it, as the thick leathery leaves are apt to damp away with heavy rains. *Draba aurea* is now very pretty with its deep golden yellow flowers, and *Gypsophila cerastioides* is another charming little alpine, having pure white Sorrel-like flowers, striped with lines of purple. *Saxifraga Macnabiana* is now flowering with us for the first time, and merits all that was said in its favour when first distributed. It has beautiful spires of white flowers like its parent *S. pyramidalis*, but each petal is thickly spotted with purple at its base. Of the *Primulas* we have most enjoyed the varieties of *P. Sieboldi* this season. They do perfectly well in shady situations in the open garden, and are exceedingly pretty. The wild garden is most lovely at present with *Hyacinths*, *Primroses*, *Orchises*, *Aquilegias*, *Calthas*, *Trilliums*, and hosts of wild-lings. BROCKHURST.

Didsbury, May 15.

THE BEST KINDS OF MUSCARI.

HERE and there one species of *Muscari* is apparently mistaken for another; allow me, therefore, to describe a few of the best from a horticultural standpoint. The very first that comes out in February is *M. lingulatum*, a gem of the purest water; the conical shaped spikes of bright turquoise-blue bells braving frost and snow, and delighting the heart by their early greeting, clad in brightest colour. After this, in the beginning of March, appear *M. amphibolis* and *M. azureum*, with somewhat larger and more open bells of a peculiar greyish sky-blue colour. I have not yet seen these in full beauty, my bulbs being rather small, and these species being both very rare, yet I think they will become favourites. Towards the end of March *M. Heldreichii* is out, and a very bright and beautiful pale ultramarine it is. Amongst blues its bells individually are the largest, and the points of the segments of the corolla are pure white, which gives this species a conspicuous and showy outline. The true plant is still rare. After this comes *M. Szovitzianum*, *M. atlanticum*, and *M. Argaii*, all three being well worth cultivation; their spikes of flower are a very bright deep ultramarine; those of *M. atlanticum* are rather small, but nevertheless very pretty. The two others produce the largest spikes among the blues. *M. armeniacum* is a little later than the above named kinds, and its ultramarine spikes, which are large and numerous, have a slight tinge of violet in them. *M. moschatum* and *M. flavum* are two Musk-scented sorts, and their spikes being yellow look not unlike those of a *Lachenalia*; the former is of a dull ochreous hue, the latter bright canary yellow, very showy, and when more plentiful will be sure to become a favourite. Both flower from the middle of March onwards. *M. paradoxum*, the spikes of which are of a singular dull blackish colour, is very interesting, but to my mind not worth a place in a very select collection.

Baden-Baden.

MAX LEICHTLIN.

Primula japonica alba.—In Mr. R. Dean's notice of our alpine plants at the Manchester Aricula Show he especially commends the *Primula japonica alba*. This is a very pure and beautiful white *Primula*, and the most remarkable thing about it is that it comes true from seed. This is the third year we have shown it, and each season seed has produced exactly the same plant, so that there is every prospect of its becoming common. I may take this opportunity of recommending that *Primula japonica* be always planted in moist situations. It does admirably in clear spaces in woods in marshy spots, either in sun or shaded. Some of the finest plants I ever saw were along the shady side of a high Beech fence.

Its colour is much richer in the shade, and there it grows more than 2 ft. high. This plant should be grown much more largely and planted out more freely than it is. It is easily raised from seed, and may be picked out in permanent situations from the seed boxes. When once established, it sows its own seeds widely if suitable preparation be made for their reception.—BROCKHURST, Didsbury.

ROSE GARDEN.

GRAFTED ROSES.

MR. FISH, in an article on this subject, does not regard grafting with any favour now, although he admits the fact that in earlier days he had been an admirer of it. It can scarcely be said that the practice of Rose grafting has had need of a revival in any sense of the word, practised as it is by all trade growers of the Rose. The root-grafting of dwarf Roses on various kinds of stocks was, and still is, in spite of the sensible desire of the public for plants on their own roots, the usual method pursued amongst growers of quantities of Roses, and must continue so to be so long as the demand for dwarf Roses remains so great as at the present time.

Cuttings it would be impossible to get in sufficient quantities. With reference to Mr. Fish's belief that Roses grafted on stocks of the Dog Rose for standards are short-lived, I have direct experience to the contrary, having worked in this way for private use over 600 plants annually. There were some hundreds of examples in about 300 kinds of all classes of the Rose family; many of the plants would be from ten to twenty years old when I took charge of them, and which had withstood the extreme vicissitudes of a climate much more trying to Roses than that of the British Isles. So much for the durability of grafted Roses. Perhaps much would depend on the care with which the operation was done. Chinese and whip and rind grafting were all employed with equal success, although the last method was that usually preferred. Good, ripe, sound scions of the current year's wood were taken off in October and inserted in boxes of sandy loam, as if for striking, till grafting time came, which is late in December and onward till the end of January. Later than January grafts do not succeed so well; they grow, but their growth is more attenuated, making the time required to form a plant much longer. I will give an instance of an advantage that accrued from grafting. Last December some Roses were purchased in pots, some kinds rather new, others being old, well-known ones. Stocks had been grafted from the hedgerows in October, and had been potted and kept in a Peach house; there they were grafted with scions from the bought-in Roses, and many nice blooms have been cut from them. Neither the mother plants nor the grafts have undergone the hardships of forcing, the latter having been standing in an unheated greenhouse for four weeks. These plants, with the little pruning back they get when the blooms are cut, will make good bushes by the autumn, suitable for planting then or later, or for forcing a little for conservatory purposes, such as standing amongst large evergreen plants where their stems and pots would be hidden, &c. By grafting a whole year was saved, for had I waited till the summer to bud these same stocks there could have been no flowers till 1883, and these produced out-of-doors; and had I required them for indoors not until 1884.

I may remark, in conclusion, that the best results follow when the junction between scion and stock is made to match as closely as can be—two edges, not one; rind grafts of too large a size should not be inserted, as in that case you have a curve opposite to a plain surface, thus rendering a union almost impossible. So soon as growth begins, which in a close, moist air of from 60° to 70° is in fourteen days, the scions should be made secure to a stake or to a neat stick of about 1½ ft. long, tied to the stock. To this the growths must be fastened loosely, as they develop

themselves. Mastic Lhonne Lefort is the best wax, and raffia the best tying bast.

SYLVESTRIS.

Rose Reine Marie Henriette.—According to my experience this Rose has been overpraised. I cannot see that it is in any way worthy of being named as a counterpart of Gloire de Dijon; it is in no way like it. That it will prove to be a good climbing Rose, I do not doubt, but compared with Gloire de Dijon its growth is weak and sprayey. As to its flowers, when placed upon an exhibition table they may look very well, but when allowed to open and hang from the plant in their own way they are loose and flimsy. Treated like Gloire de Dijon, Reine Marie Henriette grows vigorously and flowers freely, and that is all that can be said in its favour. The colour affords a change certainly, but deeper and in every way a higher coloured and more useful Rose is Cheshunt Hybrid, and I would plant three of Cheshunt Hybrid for every one of Reine Marie Henriette.—J. C. C.

Cottage Rose growing.—I send you the following particulars of a cottager's success in Rose growing, thinking you might be inclined to insert them to encourage others. The tree to which I allude—a *Maréchal Niel* budded on the *Brier*—is growing in a village in Dorsetshire on the front of a cottage, facing S.W. Its life was beggared by its present possessor about eight years ago, when it was about to be thrown away as a failure by a gentleman living close by who had had considerable experience and success in Rose growing, and it was found when uprooted to have made scarcely any roots. When I saw it a fortnight ago it covered a space of 29 ft. by 15 ft., and bore over a thousand blooms, six dozen having previously been cut. The decreasing size of the blooms, however, and increasing scantiness of leaves corroborate the theory that this species has but a limited life—on the *Brier*, at least. Assuming its age when discarded by its first owner to have been three years, and placing its death about four years hence at the soonest, this tree will have had a life of fifteen years.—W. W. DAYMAN, *Cheam*.

Roses at New Orleans.—There is no region where Roses grow in such abundance, variety, beauty, and sweetness as about New Orleans. Here *Maréchal Niel* grows 80 ft. long; its stems are 8 in. through. The particular tree to which I allude was planted seventeen or eighteen years ago. It is twined around a verandah, and its gorgeous clusters of cream-tinted Roses are lovely to behold. *Maréchal Niel* grows 50 ft. long. I have seen shoots of this Rose that long in the north, but they were scraggy and under glass. At New Orleans they run wild; the blossoms grow in gorgeous clusters of half a dozen or more, and they are so large that they would more than cover the top of a large-sized coffee-cup. They are as plentiful here as *White Top* in a northern meadow. In even some of the small gardens in New Orleans there are sometimes as many as a hundred different kinds of Roses all in bloom at once, and many bloom more or less all the winter through. The Rose which the French inhabitants of New Orleans are fondest of for decoration is called the *Gold of Ophir*. The bud is especially prized for its beauty. It is a smallish Rose, of a very pale pink, shading off toward the heart to a deep, rich gold colour. Faint streaks of crimson touch the outer petals. Another favourite here is *Madame Duprez*, the purest white Rose known. It almost glistens with whiteness like a Lily. It is a small Rose, growing in clusters. Still another lovely Rose, unfamiliar to northern eyes, is the climbing *Safrano*. Like the *Lamarque* and the *Maréchal Niel*, it roams and revels around columns and along porches, opening its rich salmon-hued buds by the hundred to the warm southern sun. The Louisiana region is the fortunate land of Tea Roses, but our hardy Hybrid Perpetuals, the mainstay in the way of Roses in the north, do not do well here. Then, too, in the south the Moss Rose does not flourish. It speedily loses its Moss,

the beautiful feathery covering which for some purpose Nature has thrown around it.—H. L. W.

KITCHEN GARDEN.

LATE CROPS OF VEGETABLES.

ALL of us attach too much importance to early crops, forgetful that in an ordinary way a regular and continuous supply is what should be kept in view. When the soil is in good condition cultivators are apt to hurry their seeds into it in too rapid succession, thereby creating a glut at one time and scarcity at another. Many kinds of vegetables, such as Peas, Beans, Cauliflowers, &c., must be used a few days after they come in; even if an attempt is made to retard them it is only at the expense of quality; they are never so good as when freshly gathered, and it is only by frequently making small sowings and plantings that a regular succession can be maintained. Among the most highly prized of all vegetables are

Early Potatoes, but as no difficulty is experienced in keeping them after they are fit for use, I need only remark that a selection of sorts should be grown that are of good quality, both late and early, and for this purpose, while growing various sorts of Ashleaf Kidney for the earliest supply, equal attention should be bestowed on those that will keep in good cooking condition until early crops come in the following season.

Peas are perhaps the most popular of all summer vegetables, and to have them in perfection great care as to date of sowing is necessary. We usually sow in the latter part of November for our earliest crop out-of-doors, but those sown in February are but little behind them, and after March sets in we sow about every fortnight quantities in accordance with the demand, so as to always have well filled pods of young Peas. About the end of May or first week in June a large sowing of some of the tall late sorts may be made, such as *Ne Plus Ultra* and *British Queen*. They will keep on bearing as long as *Green Peas* are procurable.

Dwarf or French Beans are not safe until all danger of frost is over; we find the last week in April or first week in May early enough to make the first sowing. Another may be made in the end of May, again in the middle of June, and the last on a warm, sheltered border in July. The earliest and latest crops should consist of the dwarfest varieties, such as *Osborn's Forcing*, and the mid-season ones of *Canadian Wonder* or *Black Negro*, both excellent and prolific sorts.

Broad Beans are much in request in some gardens, and the dwarf, small-podded, prolific sort called *Beck's Dwarf Green Gem* is really a gem, for the quantity of Beans which it bears in proportion to the length of the haulm is surprising. Sow this sort in November and again in February, and in March make two sowings of *Wonderful* or *Early Hangdown Longpod*. In April a sowing of *Broad Windsor* should be made. From these tall sorts the points should be pinched off when they get 3 ft. high—an operation which causes the pods to swell out much more rapidly and well than if allowed to grow to any height.

Scarlet Runners well repay good cultivation. Sow them in the end of April in a patch of good light soil, and in May take out trenches 6 ft. apart and transplant them, putting at once straight poles for them to cling to. Another sowing should be made in the end of May or early in June for a late supply, as in favourable autumns when frost keeps off they continue to bear until very late indeed. For *Scarlet Runners* we usually select a place sheltered by high trees or a hedge, as in addition to warding off slight frosts the shelter afforded against high winds is of the greatest service.

Cauliflowers or Broccoli are in request the whole year round, and, except after severe frost, are procurable, i.e., if there are some cold pits in which to winter the plants, and also Bro-

coli of such varieties as *Snow's Winter White*, *Veitch's Self-protecting*, &c., which, from being fit for use at a season when they are liable to be attacked by severe frost, are best lifted when nearly fit to cut with balls of earth attached to the roots, and planted under glass where they are free from all danger; for except in mild winters like the last, when we cut good Broccoli all through the winter daily, it is not safe to leave heads nearly fit for cutting without some protection. Early sorts will come in by the end of February, and March and April are the months in which Broccoli may be had in quantity. It is May that proves the value of late Broccoli. The seed should be sown the first week in that month; the young plants should be planted out in July or August, and they should have plenty of space in which to grow. Cattell's *Eolipse* is now in fine condition, and promises to last until the early Cauliflowers are fit for use. These are sown the last week in September, wintered in cold frames, and planted out in March. Early London and *Stadtholder* make a good succession to each other, and after these are finished, those sown under glass in January come in, and from that time *Walcheren* is one of the best until in the autumn *Veitch's Autumn Giant* furnishes a long supply of excellent heads. We sow a few in a box under glass in February and on a warm border in March, and never fail to have a good supply.

Cabbages should be young, crisp, and succulent. The main crop for spring should be sown in July and planted out in September; it will be fit for use in April and May. Plants from a later sowing wintered in seed beds and planted out in March will become fit for use in June, and after these the spring-sown small varieties of *Cabbage* or *Coleworts* keep up the supply. It is a good plan to sow a few rows where they are to remain in May and June, thinning them out to 6 in. apart; they make an agreeable autumn vegetable, and keep up the supply until *Savoy*s and *Kales* come in. These are best sown in March and April, and planted out as soon as ground is vacant for them; they will keep in good condition for a long time, and are useful as a reserve when severe frost renders more tender greens scarce.

Brussels Sprouts are in request from October until April, and in order to have fine large stalks covered with sprouts as firm as cricket balls, the best plan is to sow a pinch of seed in January in a cold frame, pricking the young plants out as soon as large enough, and finally planting out a yard apart in good soil in April for the first crop; and seed sown in the open corner in March and planted out 2½ ft. apart will come in well from Christmas onwards.

Carrots are in request at all times of the year, from the tiny ones pulled from seed beds until fully matured roots can be had from the store room, and the longer a succession can be kept up in all stages of growth the better. The *Short Horn* or French varieties are much superior to the hard cattle Carrots one frequently finds offered for sale from want of anything better. For very early supplies glass frames are necessary, but, failing these, sow on warm borders in February in the lightest and most sandy soil available; it need not be very rich, but it must be light and friable. The earliest sowing in spring may be made in February and for this the *Early Nantes* is an excellent sort. Sow again in March for succession, and in April sow the main crop in open quarters. *James's Intermediate* is the best garden Carrot grown. In July sow a good breadth of *Short Horn* for use in the form of young Carrots, to be drawn from the ground as required during the winter.

Onions are not much in request in a young half-grown state; and to have a good supply of fully-grown bulbs in spring and autumn, one sowing in spring will generally be sufficient. For the main crop sow in March after *Celery* in rows a foot apart, and to stand the winter sow again, as a rule, in August. These can be used from the seed bed in a green state or transplanted on fresh soil 1 ft. apart, when they

will grow nearly as large as imported Spanish Onions if well supplied with liquid food in hot weather. The Globe, Flat Tripoli, and Giant Rocca are good sorts for the purpose.

Turnips, another all-the-year-round vegetable, are best when grown quickly on quite fresh soil. Make small sowings in February and March on warm borders, but they are very liable to run to seed early, and about once a month for a regular supply afterwards until the beginning of August, when the main winter crop may be sown. Like most other vegetables, Turnips are best pulled for use direct from the ground; they should only be stored on the approach of severe weather, or for the latest supply in spring, when, if left longer in the soil, they would start into growth.

Spinach is divided into two classes, the Round-seeded or summer Spinach, which is usually sown in drills between rows of Peas, and if sown at the same dates as the Peas, there need be but little fear of ever being without a dish of this excellent vegetable. The Prickly-seeded or winter Spinach is a much harder kind, and is usually sown in beds containing five or six rows each, some time in August. When up, thin out to 6 in. apart, and keep the ground clean by frequent hoeing; in winter protect with evergreen branches laid over the beds.

Celery is essentially a winter crop, but for kitchen use it is more or less in demand at all times. Sow for the first crop in boxes of light soil in February, and prick out under glass lights as soon as the young plants are ready. About 3 in. of soil spread on some hard foundation is the best place for it. Plant out in trenches in April and May, and from later sowings in June, July, and August, as the latest of all will be valuable in spring for flavouring soups, and for other culinary uses. By taking up some of the latest and laying it in by the heels in a shady place, it may be preserved until that sown in spring is fit to keep up the supply.

Vegetable Marrows should be forwarded by getting the plants as strong as possible under glass for planting out in April on hotbeds, using hand-glasses or cloches for sheltering them until the middle of May. Another sowing made in the end of April and planted out in May will keep up a succession until frost cuts them off.

Lettuces, Endive, and other salad plants require great attention as to dates of sowing. Lettuces may be sown from February to September for a supply all the year round; in summer they are best sown where they are to mature. Good rich soil and plenty of moisture form the best antidote against running to seed, and a small sowing every fortnight will keep up a better supply than double the quantity sown once a month. Endive is prized most in autumn and winter, but it may be had at any time if required. Sow from May to August, plant out 1 ft. apart, and blanch by tying it up or covering it with inverted flower-pots, or lift the plants and replant them in a dark shed or cellar. Radishes should be sown once a fortnight from February to September, as they quickly become hard and astringent. Moist, friable soil of a sandy character is best for Radishes, Chervil, Parsley, Mustard and Cress, and other herbs; all require forethought in sowing a little and often, so as to always have enough for use without waste, as waste soon brings want in gardening, as in other matters, and when once a correct estimate of the demand is made the supply can be easily regulated. J. GROOM.

Linton.

Hardy's Northern King Cos Lettuce.—This proves to be a valuable addition to our hardy winter and spring Lettuces. In colour, size, and quality it is superior to anything I have seen. Should its perfect hardiness be established, it will doubtless become a standard sort for general use. We have for some time been cutting large heads of it grown in the pure loam of a recently renovated cold Peach case border, in which they were planted in January after the house and trees had been cleaned. The seeds were sown August 31 on a fully exposed border, and

the young plants were well thinned out to induce perfect sturdiness. Here they have stood what winter we have had (20° being our lowest point) equally well with Hardy's Hammersmith and the Black-seeded Bath Cos. This variety is nearly self-heating, after the manner of a Summer Cos, but when the plants have attained full size they are much improved by having a slight tie put round them. In quality they are excellent, crisp, sweet, and of great substance.—A. MOORE, *Cranmore.*

Asparagus has pushed forth rapidly here in spite of the sharp frosts which we have had of late and are still experiencing. The thermometer on several nights has registered from 6° to 7°; notwithstanding this, however, we have cut some good dishes of Asparagus from outside beds, dishes averaging from 80 to 100 sticks, not puny, but good. I attribute its earliness in some measure to having removed the winter covering and applied a good dressing of salt, which acts as a stimulant and has a beneficial effect on the plants.—J. CLARKE, *Brinknall.*

Seed saving.—Will some of your correspondents kindly inform me of the mode of saving Cabbage seeds? If saved in a garden, are they not liable to get hybridised with the various kinds of Broccoli? When is the correct time to plant out for seed? after cutting the Cabbage, or should they be left in the same ground? Would it not be better to remove the roots or stumps intended for seed to one of the fields on the farm than to let them remain in the garden, where I have a lot of bees which might hybridise them. Any information on the subject would be very acceptable.—W. D., *Devonshire.*

Early spring Cabbages.—There have lately been considerable complaints as to early Cabbages running to seed, some attributing it to a mild winter, and others to early sowing. Any decided check to growth, such as starving in the seed bed, a severe drought, or severe frost, predisposes them to run to seed. We are now cutting nice heads from plants the seed of which was sown in the last week in July. They were planted out in September, have grown on without check, and scarcely any losses from running to seed have been experienced. The varieties are Atkins' Matchless, Wheeler's Imperial, and Heartwell Early Marrow.—J. GROOM.

Broccoli.—In this locality Broccoli has been more or less a failure the last two years, probably owing to the unusually severe winter; indeed, last year the only green thing that safely escaped was Carter's Perfection Brussels Sprouts and Ragged Jack. This year cultivators were fortunate who planted a variety of Broccoli, as all were a success, and came in gradually. At present I know some gardens where Mammoth Spring White, Leamington, and Sprouting White, with the pink and purple varieties, are so plentiful and large that they are divided with hosts of friends. A strong, cool soil and a long season for growth, with earthing up around the stems if a severe winter threatens, are special items towards achieving success with this delicious and wholesome vegetable.—W. J. M., *Clonmel.*

Early Cauliflowers.—There appears to be some misunderstanding as to what may be really called early Cauliflowers. Some say they have them fit for use in April, but even in the best managed market gardens Cauliflowers have not yet been cut before the month of May; premature or button-heads will not do for market. Here we are well satisfied if we get a good supply of Cauliflowers from autumn-sown plants after the middle of May, as we can count on Broccoli, such as Cattell's Eclipse, up to that date, and then if the spring-sown plants take up the supply in June there is not much more to be desired. Happily this season Broccoli, both early and late, has stood so well that there has been no break in the supply.—JAMES GROOM, *Linton.*

Easy method of staking Beans.—When Beans are grown luxuriantly, as they should always be, there is no garden product more liable to damage from gusty winds. The storm of the 29th

ultimo did me some harm by snapping off the stems of Early Leviathan and Mammoth Long-pod, which are now about 80 in. high. I could not lose time in staking each, and if I did, the blowing of the leaves and stems against the stakes, and consequent blackening and serious injury, would not be as good as the following expeditious plan: Say a drill is 20 yards long; at each end place two stout stakes, say 3 ft. high after going into the ground sufficiently. Soft twine, attached to rings, put on these, and carried to a central stake, and then to the other end on both sides of your Beans, will act as a support; allow them to sway gently in the wind, while the rings enable you to move the twine up as they grow—the work of a few minutes.—W. J. M., *Clonmel.*

Flavourless fruit and vegetables.—My attention has been called to a remark in THE GARDEN that a Mushroom sent you measured 9½ in. We have had them 11 in. and excellent in flavour. Cauliflowers that you get in Covent Garden Market are both tough and bitter. I know that for a certainty, and the reason is they are grown in semi-manure heaps. But this is not the grower's fault. If the people will have big Cauliflowers and big Grapes without flavour, cultivators must produce them. At this moment Vicomtesse Hélicart de Thury Strawberry is only worth 4s. per lb.—I suppose because they are sweet and good, while Napiers are worth 9s. per lb., because they are large, but sour. How can we help the tastes and the ways of the great metropolis? It takes a good half of a lifetime to get at the fringe, so to speak, of what people want, and two or three ordinary lifetimes to get at the whole of their requirements.—R. GILBERT, *Burghley.*

Transplanting Scarlet Runners.—The Scarlet Runner comes in well for ground that is cleared of Broccoli and other spring crops, and it can be got up to a good size while the preceding crop is yet occupying its quarters. We usually spread a barrowful of rich light soil, 3 in. in thickness, on some hard gravel or coal-ash foundation; on this we lay the Scarlet Runner Beans, and cover them with another inch of fine soil. For the first crop we sow about the middle of April, and for succession the middle of May. If the soil is moist they will require no water, and, being in a small compass, are readily protected on frosty nights with mats or branches. As soon as the plants are ready to move we dig out trenches, as if for Celery, but not quite so deep, and after digging in some good manure return nearly all the soil taken out; we then lift the plants carefully, and put them in the centre of the trench, about 1 ft. apart. Straight poles, 8 ft. or 10 ft. high, are placed at once on each side of the row, and fastened to others placed horizontally about 6 ft. from the ground. In the case of Broccoli one can get the trenches ready, even before the crop is cleared, by digging them out between every third row. After the Runners begin to cover the poles a mulching of manure will be of great benefit to them.—J. G. L.

SHORT NOTES—KITCHEN GARDEN.

Day's Early Sunrise Pea.—We sowed several rows of this Pea on December 12 along with several other varieties, and if not earlier than they are, it is certainly a stronger grower, being dwarf, sturdy, and very much branched. For a general crop or for market work I believe it to be one of the hardiest and best of early Peas.—J. G. L.

American Wonder Pea.—I quite agree with Mr. J. Clark (p. 313) as to the value of this Pea. I sowed it in pots, and placed them in a cold pit on February 4, and commenced gathering on May 6. The Peas are of good size, and the pods fill well. I have no doubt that when better known this variety will be largely grown for forcing.—J. P. N.

Suttons' Late Queen Broccoli.—In July last you published a short account which I sent you respecting the good qualities of this Broccoli. This year it is even better than last, and I therefore send you a head in order that you may test it.—THOS. OLDHAM, *Frirn Watch, Finchley.* [An excellent Broccoli, quite free from that bitter taste which Covent Garden Broccoli often has.]

EDITOR'S TABLE.

LILY OF THE VALLEY.—We have been pleased to see during the week Mr. Poupart's flowers of this of a variety large and graceful, but different from Mr. Hawkins's, being whiter in the bells. These Lilies are grown in the open air, and just protected a little at the blooming time. As brought to the market, they are beautiful, large, and fragrant, but they do not last long in water.

EDWARDSIA GRANDIFLORA.—This distinct and handsome shrub comes from Linton, where it does well on the terrace wall. It is one of the noblest of the Pea flowers as we know them in our gardens, although it is not so much distinguished for freedom or grace as for size and distinctness. Probably it will always be a somewhat rare bush.

HARDY LADY'S-SLIPPERS (*Cypripedium*) come to us in excellent condition from Colchester; they seem to last well when cut, and their foliage and flowers are graceful. We have no doubt that they will some day be better grown. The many importations enable us to get frequent glimpses of them now-a-days, but few really cultivate them as free-growing border and rock flowers. We want them established in strong, healthy tufts to enjoy their beauty.

DOUBLE SCARLET ANEMONES.—A world of beauty in themselves, the single and semi-double varieties of the Poppy Anemone, we have to add to them some brilliant double kinds. A quantity of one of these is sent to us by Mr. Gilbert, of Bourne, and they are as fine in colour and form as one could desire. The finer double scarlets of the Poppy Anemone are better than the double of the scarlet Anemone (*A. fulgens*), more constant, finer in colour, and harder. Mr. Gilbert may be proud of his Anemones, and we hope he will always keep a good stock of them.

THE WHITE ANEMONE PALMATA.—This little hardy plant, from the Hale Farm Nursery, is, like the original, pretty, though the whiteness is not very pure; in fact it is intermediate between white and yellow. Not so, however, the charming *A. sulphurea*, also from Mr. Ware. In this case the flowers are elegant and cup-like, and of a uniform soft sulphur yellow, set off by the finely cut Fern-like foliage which clothes the stem. It is one of the true alpine Windflowers, though it grows 1 ft. or more high. It is a plant that requires to be more widely diffused.

CALOCHORTI FLOWERS from the New Plant and Bulb Company, Colchester, include the pretty *C. iliacinum*, with rather large cup-shaped blossoms of a soft pleasing lilac colour, and *C. Benthami*, with bright yellow flowers in the way of the less rare *C. pulchellus*, likewise sent. These Californian bulbous plants, though requiring a little attention to grow them well, are so beautiful, that they well merit any care bestowed upon them; a warm light soil in a sunny position, with slight protection in winter, is all that is needful to make them succeed.

PRIMULA FLORIBUNDA.—We have received from Mr. T. Shortt a coloured illustration of a Primrose under this name, growing in Messrs. Dickson & Sons' Newton Nurseries, Chester. The drawing represents a dwarf plant with rather long leaves in a loose tuft, from which proceed numerous flower-stalks furnished at intervals with whorls of small bright yellow blossoms. The profusion of the flowers fully justifies

its specific name. It is very distinct from any other *Primula* with which we are acquainted. It is probably the *P. floribunda* of Wallich.

CAMELIAS AND AZALEAS IN KENT.—Anyone who has witnessed the destruction of our orchards and woods of late can, perhaps, best appreciate the fact that Camellias and Azaleas are now blooming very well in the open air in some places. The white Indian Azalea is really a hardy shrub, as has been proved again and again by our correspondents. It is hardy, not only at Castle Martyr, or in Cornwall, but, as we now see, on the hills over the weald of Kent—not by any means a favoured spot we should say, though Linton has the advantage of elevation and shelter.

VIOLETS.—The Violet season may be said to be past, especially as there are so many flowers less modest claiming our attention, but some from Aswarby Park are large, fresh, and very fragrant. Mr. Nisbet says the samples sent are from the third crop of bloom, gathered from one row since September, 1881, and he expects another in June or July from the same plants. It is instructive to notice the power this plant has of prolonged blooming under varying conditions. The whole of the past fine winter and spring it has been a delight in all the cities of Europe, and still it comes young and fresh from our English gardens.

THE QUAMASH AS A CUT FLOWER.—To us one of the most charming plants we know of for a room is the blue *Camassia*, and as we lately spoke of the pleasant way which some bulbs have of lasting a long time in a cut state, this illustrates it well, every flower opening along the spike. Bringing it near the eye the iridescence of the buds is well seen, and the gold of the stamens against purple stars. We do not speak of "night work," as the florists call it, but there is no reason why all cut flowers should be considered in relation to effects under gas only. No doubt, like many purple and blue flowers, its colour would be ineffective at night, but its form is always good, and when the stars open fresh and each purple division has its opposing dot of golden stamen, the effect is lovely. The New Plant and Bulb Company send us from Colchester a variety which is called *atrocaerulea*, but it differs very little from the older plant, and yet it is worth growing for the deeper shade of colour.

LILAC BLOOMS.—Mr. Rivers has sent us some fine Lilacs, large in truss, larger in the pip than usual, and very rich in fragrance. Those who have a chance anywhere where there is fresh air should treat themselves to a little grove of Lilacs, large, well grown, distinct as possible, fairly thinned out to encourage bold flower-heads, and not robbed of light or food by coarser neighbours. It is our finest flowering shrub, and notwithstanding the serious destruction of the present year, it is now blooming bravely. Mr. Rivers says: "The kindest are *Gloire de Moulins* and *Philemon*. I think you will admire the size and beauty of the former. My trees are pictures. *Philemon* is evidently a seedling from *Rothamensis*; it is very solid and compact, and later in blooming than the ordinary Lilac. *L. Josikea* and *Emodi* are interesting varieties, but the flowers are small and not to be compared with the garden Lilacs, which, by the way, have been exceptionally luxuriant this year. I send you also some flowers of *Magnolia cordata*, gathered from a standard tree, which is now probably sixty years old."

FINE MEDINILLA MAGNIFICA.—I send you a photograph of a plant of *Medinilla magnifica*

grown at Belsfield, Windermere, which when at its best was really magnificent, though through being nearly round and flowered equally well on all sides the photograph does not show it off to the best advantage. It is six or seven years old, and this year has produced 160 bunches of its rich pink-coloured flowers, the greatest number that has ever been produced on one plant here—130 being the nearest approach to it. Last year it had 86 clusters of bloom, also very fine, and if it continues to grow as it has done for the last twelve months, the present number will be very much exceeded next year. The plant is in a 22-in. tub, and is 8 ft. 6 in. high from the tub and 10 ft. in diameter. Some of the bunches of flowers were over 2 ft. in length and 13 in. across.—JOHN NICOL. [The photograph fully confirms all that is here said of the plant—evidently a magnificent specimen.]

FRUIT GARDEN.

Pine growing (p. 187).—In answer to Mr. Cowburn, I still adhere to my assertion that I do grow Pines without any other bottom-heat than that obtained from a bed of leaves, and always have satisfactory results from beds made in autumn, spring, or summer. Of course the leaves are collected in the autumn and stowed away in a shed or any other convenient place. Again I say that from rootless suckers I obtain fruit fit to set on any table in six, seven, eight, or nine months.—D.

Blenheim Orange Apple.—Allow me to correct an error in my remarks on this Apple (p. 331). I did not intend to convey the impression that the Blenheim was a slow grower, but that it was slow in bearing fruit; the tree grows rapidly here, but it is some years before fruit is produced either on the Paradise or on the Crabstock. Some years since I had some trees grafted on the Keswick Codlin, thinking that this fertile sort might have some effect in inducing fruitfulness, but the result has not been satisfactory.—T. FRANCIS RIVERS, *Sanbridgegworth*.

The Gooseberry caterpillar has made its appearance in this district in great numbers. I find no better plan of getting rid of it than cutting a sack in halves, and thickly tarring it with gas tar. Two men, one at each piece of sack, draw it carefully under the bushes; then by tapping them the caterpillars fall on to the tarred sack, and are dead in an instant. About twice going over the bushes in this way clears them. Growers will find this plan much cheaper and better than either hand-picking or dressing the bushes with poisonous powders.—G. WILLIAMS, *Peasmarsh Place, Sussex*.

SHORT NOTES—FRUIT.

Gooseberries.—These are an unusually heavy crop in some places this year. At High Grove, near Finner, they might be gathered in handfuls, so crowded together are they on the bushes. Everybody surely will be able to have Gooseberry tarts this year, and the thinning for that purpose will greatly benefit the trees.—M.

Fruit prospects in East Sussex.—We have escaped much of the damage done by the late gale through being well sheltered from the south west; therefore I would say to all about to plant fruit trees, protect or select sheltered places and plant afterwards.—G. WILLIAMS, *Peasmarsh Place*.

Strawberries.—I am happy to inform Mr. Fish (p. 287) that Strawberry out-of-doors here are, up to the present time, everything that can be desired. The plants to which I allude were forced and turned out early last summer. The sorts are President and Vicomtesse Hortense de Thury. The bed in which they are planted has been trenched and manured just previous to planting, and I do not think I ever remember seeing such a profusion of bloom before on Strawberry plants as on those in question.—J. WOOLFORD, *East Thorpe Reading*.

Growing Pines for profit.—I can confirm "D.'s" statement that Pines can be grown in England in pits with a bed of leaves for bottom heat. At the Royal Gardens, Frogmore, all Pines are grown in brick pits of various depths on firm beds of leaves, from 3 ft. to 5 ft. deep. The top-heat is supplied by means of two pipes in each pit. Many fancy there must be pipes for bottom heat, but as I assisted in making all beds in the Pine pits during my stay at that place, I can state positively that at Frogmore Pines are grown with leaves for bottom heat and nothing else. As to the results, I think they are well known to both English and foreign horticulturists.—ERNEST HINDERLICH, *New Palace, Potsdam.*

Strawberries and the past winter.—I stated in THE GARDEN a few weeks back that my forced Strawberries were stamenessless. The same thing has happened in the case of Vicomtesse Héricart de Thury in cold frames—that is, all the first flowers are without stamens. The second flowers, are, however, much stronger and perfect in that respect. I notice the same thing out-of-doors; all the early sorts are stamenessless, but late kinds are looking strong and well. A friend of mine, an experienced Strawberry grower, thinks the mild winter brought the bloom on so fast, that the first flowers were weak and stamenessless—in short, what is called "blind," an occurrence which often takes place when Strawberries are subjected to too much forcing and allowed an insufficient supply of air.—G. T.

Packing fruit.—We have received from Messrs. Christy & Co., 155, Fenchurch Street, a sample box made to hold a dozen Peaches or other valuable fruit desired to be sent away by rail as presents or otherwise. It is made of stout wood, planned and hinged, with fastening and holes, through which a string can be passed and sealed on the top. Movable wooden divisions keep each fruit in its place. The box in question measured 10½ in. long, 7 in. wide, and 8 in. deep, and might prove useful for the purpose of transmitting fruit by hand, but the experience of salesmen in Covent Garden Market is that Peaches or other fruits seldom arrive in good condition if packed in partitions, the latter not being, as a rule, large enough to admit of a good springy bed of packing material, such as moss or bran, which surpass any other materials for packing fruit. Wadding, not being elastic in thin layers, is considered to be the worst, as it becomes hard through the weight of the fruit, and so bruises it.

NOTES OF THE WEEK.

HOSE-IN-HOSE POLYANTHUSES.—Some pretty flowers—yellow, purple, crimson, and other colours—belonging to this class of Polyanthus come to us from Bletchley. Some of them are very dark and rich in colour, and the orange centres and double corolla give them additional interest.

CARNATION SOUVENIR DE LA MALMAISON.—This, at a little distance off, is not unlike the Bourbon Rose of that name, so large and fine are its blossoms. We saw some well-flowered plants of it the other day at High Grove, near Pinner, where it is a favourite, and where it is found to strike very freely from cuttings. Some put in lately were rooting most satisfactorily.

DECAISNEA INSIGNIS, flowering now for the first time, at Kew, is by no means a showy plant, the racemes of flowers, which are as large as those of the Laburnum, being of a dull, greenish yellow. It is, however, said to bear handsome fruits in its native habitat in the Himalayas. Doubtless it is a plant of exceptional botanical interest, but to horticulturists it does not promise to be of much value.

BANKSIAN ROSES.—The whole front of the gardener's house at Moorpark—a two-storey one—is covered with Banksian Roses, now literally one mass of little white and yellow blossoms;

the yellow kind occupies about one-third of the space, but of the two is the most effective. No better covering for a wall could be found than these Banksian Roses, which even when out of bloom are by no means unattractive. Perhaps Mr. Mundell will tell us how he treats them to have them in such excellent condition.

CALECEOLARIAS.—The extensive collection of these in the Messrs. Sutton & Sons' London Road Nursery, Reading, is now in great beauty, representing these popular greenhouse flowers in their finest character, as a gathering from the collection now before us fully shows. The flowers are large and bold, and embody a great variety of colour, the self-coloured sorts being particularly lovely. Such a display of Calceolarias as that at Messrs. Sutton's must be well worth seeing.

ENCEPHALARTOS VILLOSA.—This is one of the handsomest Cycads ever introduced, and one which promises to be widely distributed, judging by the large numbers of plants that have recently been imported by Messrs. Carter & Co., in whose nursery at Forest Hill we lately saw them in all sizes, from great unwieldy stems 1 ft. or more in diameter to mere pigmies. The majority of these are just developing leaves, which as they emerge from the stems have an extremely handsome appearance, being of a cheerful green and very perfect in form; some of these young leaves are 3 ft. or more in length already.

CLEMATIS MONTANA.—In order to get a fair idea of the real beauty of this hardy climbing shrub, one needs to see it in such perfection as a plant of it now is on the walls of a cottage near Mr. Seeley's garden at Furzedown, Tooting Common. This plant covers the entire south side of the cottage and the greater part of the east with snowy blossoms so thickly set as to almost hide the foliage. We have rarely, if ever, seen such a large and perfect plant as this, and it must be of great age. Surely there are few hardy shrubs more desirable for covering walls or trellises than this Clematis, and as it flowers before the majority of the other kinds its value is thereby increased.

THE SAXIFRAGES.—By a systematically arranged catalogue sent us by Mr. Potts, Fettesmount, Lasswade, we are pleased to see that he is making a thorough study of Saxifrages, not only from a botanical, but from a horticultural point of view, as he gives full weight to the numerous varieties. The catalogue is arranged under various sections, such as Megasea, Robertsonia, headed by descriptive characters of each section, and followed by a list of the species and varieties in cultivation. If other important classes of garden plants were taken similarly in hand by amateurs, it would lead to good results.

THE TUBEROUS BEGONIAS, for which the Stanstead Park Nursery, Forest Hill, has now become so famous, promise to be even better this season than hitherto, the collection, numbering some 100,000 plants, being much richer in new varieties and the individual specimens finer. They occupy a large portion of the glass houses, to which has been recently added a capacious structure about 100 ft. or more long by 20 ft. in breadth. The house, which is filled with the larger plants, will, in the course of a few weeks, be worth a long journey to see, for nowhere can the Begonia be seen in such perfection as here. The house in question is span-roofed, with an additional smaller house running at right angles to one of its ends, thus giving the entire structure the form of a T. The stages are so arranged as to display the specimen plants to the best advantage, the broad centre one being capable of accommodating several hundred plants, and those running round the sides the smaller ones.

Though it is yet somewhat early for tuberous Begonias to be in bloom, several of the earliest varieties are in full beauty, and the majority of these appear to have more of the B. boliviensis type in them than the Pearcei, roseiflora and crassifolia types being later. Most prominent amongst kinds now in full flower are Mrs. Robert Whyte, deep rose-pink; Consul Darlington, a rich, deep crimson, and one of the largest flowered sorts of all; Arthur Soames, an intensely deep crimson; Hon. Mrs. Brassey, Stanstead Rival, and a few seedlings, which partake strongly of the characters of the latter variety, but of a deeper crimson colour; Commodore Foot, one of the deepest and richest coloured forms of the Davis type, and remarkably free in growth and flower. Among the best doubles may be mentioned as being very fine now Mdme. Chamaissa, Mdme. Dumas, and Comtesse de Choiseul. Besides these there are hosts of others flowering, some not named, including a very fine double white, said to be the finest of all. Among single whites we are told that a better sort even than Mrs. Laing is to be found this season.

NIGHT-SCENTED STOCK (Mathiola tristis).—It is so seldom that one meets with this old-fashioned flower in quantity, that the fact is worth recording. At the Stanstead Park Nurseries, Forest Hill, Messrs. Laing grow it largely and well, the plants being very healthy and covered with flower-spikes. It is grown in an airy house, along with Pelargoniums and a similar class of plants. To those who are unacquainted with the Night-scented Stock, we might mention that it is a dwarf perennial, having tufts of hoary leaves, from which arise spikes of flowers of a singular colour, a sort of livid purple, not at all showy, but the delicious fragrance exhaled by the flowers at night amply compensates for their unattractiveness.

ECHUM AROREUM, now in flower in the temperate house at Kew, is one of the handsomest of the genus, and, indeed, of the Boraginaceae family. Like E. fastuosum, giganteum, candicans, fruticosum, and others, it is of shrubby growth, the stems and branches being rigid, the latter diverging in a candelabrum-like manner. The plant in question is about 5 ft. high, and has ample foliage on the upper parts of the branches, which are terminated by a dense spike about 1 ft. in length. The blossoms are of a violet-blue colour, and therefore showy, though neither it nor its allies can be classed amongst popular garden plants; they better beth a botanical collection. It is, we believe, a native of the Canary Islands.

ALPINE FLOWERS AT THE BOTANIC GARDENS.—The Botanic Society give prizes, very properly, for alpine flowers, and they had some pretty groups on Wednesday last, but the interest of each was marred by a curious rule which compels each exhibitor to bring two of each kind in a dozen specimens. Thus if an exhibitor happened to have several beautiful species of plants he could not show them in his group, being obliged to show two specimens of each of six kinds. The rule mars the beauty and interest of the groups, and seems to us to have no justification whatever. We hope the society will change it. Alpine and hardy plants are usually caricatured in shows by the wretched way in which they are grown in pots. Miserable dots of plants of half-a-dozen flowers of things that, thrown on a sandy bank, would have a thousand flowers, 'do no good, but hurt the movement. Unwise rules in schedules should be changed, so that the exhibition of such things in pots may be improved a little.

LEERIS SUPERBA.—Those who want to grow but one perennial Candytuft, and that the very best, should be recommended the superba va-

riety of *I. Garrethiana*, which far surpasses any other in every good quality, being free in growth and an abundant flowerer, the flower-heads being large and of snowy whiteness. As a first-rate border plant, a plant for the margin of a shrubbery, or for planting on bold rock-work, where it could fall over the ledge of a rock, it is alike to be recommended. It delights in a warm situation and a light, dry soil, such as exists in Mr. Stevens' garden at Byfleet, where there are masses of it a yard or more across.

ESCHSCHOLTZIA TENUIFOLIA.—Sometimes plants suffer by comparison with their kind. We are apt to make comparisons without judging of the uses of the individual plant placed by itself. No plant we have ever judged lightly of has produced such a change in our mind as that the name of which is at the head of this note. Seeing it the other day in Mr. Whitehead's garden in a good broad patch by itself, the charm of colour—a delicate lemon—was indescribable; it was quite isolated from anything else of the same kind, and at some distance was not recognised by its habit or foliage, as the stronger kinds of the same family are. The plants we refer to had been sown in autumn, and thus gathered strength through the winter. They have been a long time in flower, and would make a very pretty carpet for choice beds of spring flowers; the effect of the flower is that of a Crucifer, but prettily cupped.

MUSA COCCINEA.—This species is one of the most ornamental of the several *Musas* in cultivation, on account of the brilliant colour of its inflorescence. A plant of it is now in flower in the Victoria Regia house at Kew. It is some 4 ft. or 5 ft. high, and has small leaves compared with those of the Banana or Plantain. The inflorescence which terminates the stem consists of a large dense cluster of broad bracts of a bright scarlet-crimson, a colour which contrasts strikingly with the foliage. One great advantage this species has, not possessed by other *Musas*, is its small growth, which admits of its being grown even in ordinary stoves. It apparently delights in a warm, moist atmosphere, judging by the Kew specimen.

EURYCLIS CUNNINGHAM.—We met with this handsome bulbous plant in flower the other day in Mr. G. F. Wilson's garden at Heatherbank, Weybridge, where it was in excellent growth in one of the Orchid houses. It is very distinct from the commoner *E. australasica* and *E. amboinensis*. The leaves are broad, like those of the *Eucharis*, to which the plant bears a great resemblance. The flower-stems, some 18 in. high, are terminated by a dense cluster of from six to a dozen blossoms, pure white, and about 1½ in. long. This plant is well worth culture, as it is not only fine in flower, but in foliage. It grows naturally in the Araucaria woods, on the banks of the Brisbane River, Moreton Bay, where it was first discovered by Allan Cunningham.

HARDY PLANTS IN FLOWER at Grasmere, Byfleet, include the following, all of which are worthy of growing generally: *Iris nudicaulis*, one of the finest of all the early *Iris*s, grows in tufts about 1 ft. high, and bears numerous deep violet-purple blossoms. It is a free grower in a warm, dry soil, and is excellent for edgings, being compact in growth and so uniform when in flower. *Uvularia grandiflora* has large, showy, bright yellow flowers, drooping from slender stems about 1 ft. high. It grows well in a shady peat border. *Lanthe bugulifolia*, a Mullein-like plant, has the strangest coloured flowers we know of, being a mixture of yellow and green, with a suggestion of purple. It has erect flower-stems about 1 ft. high. *Fritillaria*

recurva, a beautiful Californian species, has showy bell-like flowers of a rich orange-red colour. It is rather tender, but succeeds well in a light, warm soil, especially during such mild winters as the last. *Euphorbia pilosa*, about the only hardy Spurge worth growing, is very attractive, large plants of it being quite aglow with clusters of pale yellow flowers. It blooms earlier than any other, and is useful for cutting from the beginning of April till the middle of May. *Myosotis elegantissima*, the variegated-leaved variety of Forget-me-not, is a pretty plant, its blue flowers contrasting charmingly with the variegated foliage. Other good hardy perennials are *Houstonia coerulea*, which has been in flower here throughout the winter; also *Dianthus multiflorus*, one of the best of hybrid Pinks; *Isopyrum thalictroides*, *Aubrietia erubescens*, with pink flowers; *Saxifraga Wallacii*, one of the finest, if not the very best, of all mossy Saxifragas; *Ionopsisidonea aculea*, a charming little annual that no rockery should be without; *Anthyllis montana*, *Dielytra spectabilis alba* (not so good as the type), numerous kinds of Globe Flower (*Trollius*), *Epimedium*, *Iberis*, *Cheiranthus*, and *Paeonies*.

CORTUSA PUBENS, a pretty little plant rather new to cultivators, is now finely in bloom on a shady rockery at Grasmere, Byfleet. Anyone knowing the older and better-known *C. Matthioli* would at once recognise *C. pubens*. It differs in being clothed with a dense, short, downy pubescence and being more tufted in habit. The tiny magenta bell-like blossoms drooping from erect stems about 6 ft. high, and well above the foliage, make it a pretty rock garden plant. Like *C. Matthioli*, it seems to prefer a shady spot to an open one, probably on account of the position being moister. It may now be procured in nearly all hardy plant nurseries.

ORCHIDS AT REGENT'S PARK.—A fine bank of Orchids at the Royal Botanic Gardens was very much marred on Wednesday last by being placed right in front of a line of stiff *Azaleas*, very raw and hard in colour, as usual. The *Azaleas* were somewhat higher than the Orchids, so that a person standing on the Orchid level saw this glare of colour through the Orchids so far as he could see anything in such a jumble of colour and form. This jarring of colours and forms—about as happy as it would be to have a guard's band and half a dozen Scotch bagpipers performing face to face—shows as well, perhaps, as anything can show how little art is studied in the arrangement of flowers! People are content with the individual only, and do not care what harsh surroundings mar their groups of plants. If such a thing be done and tolerated by the Royal Botanic Society, what are we to hope for in country shows and gardens? A line of sage green baize behind the Orchids would have been infinitely better, supposing green plants or a quiet background were not obtainable.

HARDY PLANTS AT CHISWICK.—There is always something to interest lovers of hardy plants on the rockwork at Chiswick. Just now *Tiarella cordifolia* is a conspicuous object, being furnished with many spikes of pure white flowers, like a pure white Mignonette. It grows about the same height, but more compact and with the green leaves marbled with dark brown—a pretty and effective plant. *Valeriana sibirica* is a pretty rock plant, bearing pale lilac flowers borne in small trusses. A few of the *Veronicas* are also pretty. *V. prostrata* is a charming little species, with spikes of lavender coloured flowers. *V. Guthrieana* is very charming, bearing spikes of large violet flowers of a bright colour. *V. pectinata* is very dwarf and compact, the flowers pale blue with a white centre. *V. serpyllifolia*, the Thyme-leaved Veronica, is white flowered

and very pretty. *Saxifraga Wallacii* is a charming root plant, dense and dwarf in growth, and throwing up numerous white flowers on erect stems; it also makes a good pot plant. *S. muscoides purpurea* is also dense in growth, and throws up a profusion of bright magenta flowers of a good hue of colour. There are several other Saxifragas in bloom, but these are quite distinct and most useful. *Anemone sylvestris*, with its white flowers, is in such marked contrast to the usual gay-coloured Windflowers found in gardens, that it ought to be much commoner than it is. *A. narcissiflora* is very distinct, throwing up strong stems, each with four small yellow-eyed white flowers at the top. *Ionopsisidonea aculea* looks exceedingly well on the higher parts of the rockwork, where it grows in little tufts surrounded with numerous small white flowers. Mr. Barron has a large quantity of it in pots, and grown in this way it is very useful indeed for conservatory and greenhouse decoration. The dwarf *Phloxes* of the setacea, subulata, and verna types are charming just now; a variety of subulata, named *violacea*, shows a marked advance in the way of securing a greater depth of colour in the flowers. *P. stolonifera* and *P. divaricata* are pretty mauve-coloured types, and very pleasing just now. *Arenaria balearica* is a very dwarf subject with small white starry flowers, and *A. multicaulis* has a compact growth also, and white flowers, larger than those of the preceding, but both are little gems for the rockwork. *Gypsophila cerastioides* represents a very pretty and distinct species, with pure white flowers distinctly marked with red lines; it is also of very dwarf growth. *Saponaria ocyroides splendens* is a decided improvement on the type, larger in the flower, and in every way most desirable. Then there is *Campanula nobilis*, with its large reddish-brown flowers, growing well at the base of the rockwork on the sunny side. The *Aubrietias* are charmingly gay, especially *Eyrei*, which is the best of all the lilac or purple varieties; and *Hendersoni* and *violacea* are by far the best of the violet-coloured types.

CINERARIAS AND CALCEOLARIAS now form the leading feature in Messrs. Carter & Co.'s nursery at Forest Hill. As in the case of other classes of plants which this firm takes in hand for seed-saving purposes, they are grown by the thousand, and the sight of such an array of bloom may be better imagined than described. A careful system of intercrossing is carried out so as to secure the finest possible strains, and for this purpose particular sorts are isolated from the rest, so as to ensure a better safeguard against the plants being fertilised by sorts of an inferior type. The great diversity of colour and size of bloom in both classes of plants is very remarkable. *Primulas*, which are likewise grown on a very large scale, were just passing out of bloom, but the collection still shows what a grand sight such an extensive display must have afforded. *Petunias*, consisting of some 14,000 plants, representing a large number of sorts, will soon be worth a long journey to see. The plants for the exhibition of annuals in Regent's Park are now receiving attention, and, judging by their appearance, the show of bloom this year will be most satisfactory. Another noteworthy feature in this nursery is the collection of *Coleuses*, which number over 100 named kinds, including the beautiful varieties raised by Mr. King when at Wray Park, and which have received such high commendation. *Coleus* fanciers may find here every variety of any value, but as to the distinct characters of a good many of them, they are difficult to discover. The collection is, however, a remarkable one, and the most complete that we know of. We are pleased to see that hardy plants are receiving attention at this nursery.

FLOWER GARDEN.

NARCISSUS BULBODIUM.

We give an engraving of this distinct Narcissus from a plant grown in the gardens at Munstead, where it does well on the light, but enriched soil. It is one of the best of all the plants that perished during the period of neglect of our garden flora. We do not even remember

them with their stamens ruptured, some of them having more or less developed into petals. Two seasons afterwards I found that the single kinds had entirely disappeared, and that the double sorts had greatly increased. There, however, still remain a few semi-double, but I cannot find any with their stamens in such a low stage of development as I observed the first season, and I am quite prepared to see these semi-doubles disappear next season. Now, the question arises, have the double kinds crushed the single sorts out? or

is liable to suffer from spring frosts, or more especially cold winds, we select sheltered recesses where large trees or overhanging shrubs afford it shelter, and plant strong roots of it about 2 ft. apart, digging out large holes, and if the soil is poor, filling them with good fresh soil or manure. We find February a good month in which to transplant, as the crowns are then just beginning to grow, and even the smallest piece will make a plant. Any broken off in the process of removal are planted in nursery beds where they make good plants for potting.—J. G., Linton.

GOLD-LACED POLYANTHUSES.

MANY have but a dim idea of what constitutes a good Gold-laced Polyanthus. It cannot be too strongly urged that if a flower is to be regarded as at all presentable in this section it must have a centre of clear yellow and a well-defined ground colour dense and perfect; the lacing must be of the same colour as the yellow centre, rather narrow than broad, and in each segment cutting right through the ground to the centre. If any amateur grower happens to raise flowers that have these requirements, thrum eyes, and a good formed truss, they may then have good reason to rejoice, but such flowers as are too often grown as gold-laced are literally miles away from such refined markings as are here indicated. I do not know which is the oldest good show variety in cultivation, but we may from its name pretty well judge of the time when Prince Regent was raised, and thus calculate that it is at least sixty years old. Now, this kind was perhaps next to Cheshire Favourite, which is the best black ground kind we have, the very best shown at South Kensington last month; indeed, there were flowers on Mr. Barlow's plants that were literally perfect. It must therefore be obvious to sanguine raisers that if after sixty years such a kind remains one of our best sorts, that progress in the production of gold-laced kinds of high quality must indeed be slow.

Gold-laced Polyanthuses are divided into two sections—black grounds and red grounds, although there are some kinds in which the distinction is not too clearly defined, Prince Regent, for instance, being so dark as to be almost one or the other. On the other hand, Lancer is a well-defined red, and Cheshire Favourite a pure black ground, so that with these, as with many others, the line is clear enough. Black grounds are in the ascendant, the dark hue showing much more largely in the Gold-laced Polyanthus than the brighter hue does. Of the

Black section, Cheshire Favourite does now and will probably through many years stand



The Hoop Petticoat Narcissus. (Natural size.)

if it were ever common in our gardens, but the prevalence of its English name, and the illustrations of it in old books, make us believe that it was. We are glad to see it now becoming commoner, and feel sure there is nothing among the later Daffodils more worthy of cultivation. On heavy soils we never noticed it progress, but even care there might make it happy. On the many warm soils throughout the country there should be no difficulty in growing it freely.

Double Daffodils.—I have carefully followed the discussion as to the possibility of single Daffodils becoming double. We planted a number of single and double kinds round a shrubby bed here, and at the same time a number amongst the Grass on the lawn. Those round the bed have become double, whilst those on the lawn have remained much the same as when they were planted. My attention was first directed to them three seasons ago. I then observed a number of

have the singles been once double and only now returning to their original form? My own opinion is that when the single forms get into a situation where they find plenty of food, the stamens have to give place to petals, as is the case with all double flowers which we have managed to get into that state by cultivation. The double stock affords an example of the way in which stamens are converted into petals by cultivation, as does also the Rose—the two former having but few stamens are soon made double; whereas the Rose having a great number can well afford a few to form a double flower, and still retain enough for purposes of fertilisation.—T. S. GLENMACHAN, Belfast.

Dielytra, or Dicentra spectabilis.—This lovely plant is now in full beauty in the sheltered nooks and corners of shrubby borders, where it is quite at home along with Solomon's Seal, Honesty, and similar plants, and, like them, it is effective only in clumps or groups of several yards square. As it commences to grow very early, and



Narcissus Bulbodium as usually grown.

as one of the best, if not the best. Certainly it was by far the best staged at South Kensington, and wherever the eye lightened upon a dark flower of superior quality, it was sure to prove to be Che-

shire Favourite. The centre is of a clear yellow, very round and defined, the ground black and the lacing narrow and perfect. Exile ranks high as a black ground kind, and though not so certain as Cheshire Favourite is when good a striking and beautiful flower. Lancashire Hero is a newer kind, a large bold flat flower, with lacing somewhat broad, but good. It was exhibited in good form the other day at Manchester, but at South Kensington the ground seemed to lack body. Lord Lincoln is a somewhat difficult kind, but when caught good is very beautiful. Beauty of England is also a high class kind, and Formosa is worth a place in every collection.

Red grounds, if hitherto less abundant than black, are at least receiving, through Mr. Barlow, some valuable additions; amongst them his Sunrise must rank high, being one of the most richly coloured and perfectly laced. It seems to possess a fairly robust habit, and it is hoped will soon get widely distributed. Firefly, another of this raiser's seedlings, if less perfect, is hardly less beautiful. The lobes of the petals are less rounded than those of Sunrise, but that seems to be a feature too common in gold-laced flowers, and sadly wants eradicating. Lancer is a fine old red ground, having clear colours and refined lacing. George IV. is a favourite sort, and when well bloomed is a telling flower, but in the south it is almost always shown coarse, the ground especially being ill defined. Prince Regent, a beautifully defined flower, having a dark chestnut red ground, comes into this section. It is when well grown a strong kind, either in its own section or in a mixed class. Two other good red grounds are Model and Red Rover, sorts rarely seen in the south and probably scarce.

Culture.—There can be no doubt that over-potting or gross culture tends to produce coarse flowers. The plants should always be rather under than over-potted, and at the flowering season should have a good potful of roots, feeling, so to speak, the sides of the pot. The plants, too, like a cool temperature, heat tending to demoralise flowers of high quality. That is one reason why the gold-laced Polyanthus is always shown from the north in such superior form, and southern growers if they would be successful must endeavour to secure similar favourable conditions. A. D.

ANEMONES AND THEIR COLOURS.

COULD you have seen the bed of single Anemones which I have had blooming here during the spring you would have found no reason to complain (p. 305) of the want of more brilliant or distinctive colours. I regret I did not send blooms, but anxiety to secure all the seed of such beautiful things stayed me. Yet for brilliancy of colouring, especially in the case of scarlets and blues, and also for excellence of form, I have never seen them excelled. The seed was given me a year or two since by a gentleman who brought it from the Continent, and I raised it under the impression that it was of the stellata strain. There can also be no doubt that the double forms of the Anemone do at least furnish not only rich colours, but they may be so grouped as to present striking masses of colour. I obtained from Messrs. Carter last autumn roots of several kinds for the purpose of testing the merits of the double Anemone for pot culture. The result, though not altogether successful, would perhaps have been much more so could I have grown them in a cool frame where the flowers would have come near to the glass. Then they would perhaps not have become so much drawn. This defect, however, was most prominent in the rich coloured Chrysanthemum kinds, but it is not one of much importance. On the other hand, the roots being planted, some half dozen in an 8-in. pot, have bloomed most freely, and certainly have been exceedingly beautiful. The Anemone always furnishes a good base of finely-cut leafage, out of which its flowers rise, so that beauty of a certain kind is not wanting, even if there be little or no bloom on the plants. The richest colours are seen in the crimson and vermilion Chrysanthemum-flowered kinds.

The blooms on these from good roots are large, exceedingly double, and when fully expanded in the sunlight of fine form. The outer or guard petals are slightly pointed, but perfectly placed; whilst the centre mass of minor florets is exquisitely arranged. The colouring, too, is intense. The ordinary Chrysanthemum kind has smaller blooms, the outer petals reddish white, and the smaller florets of a bright carmine hue. This kind blooms with great freedom, and is most useful for furnishing cut flowers. Somewhat resembling single Poppies, but having in the base of each flower a dense mass of little florets, is the section, of which Feu Superbe, Lord High Admiral, and Josephine are examples. The colours are charming, the prevailing hues being rosy pink and rich carmine. These are both large and late. Then the blue and purple section makes a very effective and distinctive display. These are of even, compact growth, stems firm and erect, and bloom produced in abundance. The shades and other distinguishing features are not very diverse, but all are very pleasing. Of these I have Azure Incomparable, Lord Nelson, l'Oracle du Siècle, and La Ornement de la Nature. Patches of these double Anemones, consisting of about a dozen roots, planted in sunny spots, would produce brilliant effects in a garden. Probably they only want to be better known to be more widely cultivated. The real double forms do not seed, but those having a semi-double character will do so. I have found in my own bed of last year's seedlings several really fine doubles that came from semi-double flowers, and I have now some semi-double seed plants on which may be seen only about one-half that will produce fertile seed.—A. D.

—As a grower of Anemones, permit me to note that I have tried experiments, as you suggest, on plants grown from Messrs. Carter's seed, which produced admirable specimens, large in size and rich in colour. I saved the seed from those I wished to perpetuate, say deep red, crimson, and velvety scarlet, striped crimson, deep blues, and so on, including the fine semi-double. Strange as it may seem, in no instance did they come true from seed, and much more than ordinary care was exercised. Hybridisation is extremely easy by wind, bees, &c. There is hardly a garden in this locality where beds and borders of this Anemone are not largely and deservedly grown.—W. J. M., Clonmel.

White Myosotis.—"J. S. W." is doubtless wrong in regarding the white Myosotis which he possesses as *M. dissitiflora*. Probably he has only the white form of *M. sylvatica*, which is common enough. I have grown *M. dissitiflora* for some twelve years very largely, and have never got from it a white seedling; but the other day I found a tiny piece sported from a large plant carrying white flowers, and if I can get seed from that it may produce a true white race. I do not know whether the plants recently shown at South Kensington were seedlings or propagated from cuttings. The white *M. sylvatica* will often throw out blue flowers, and perhaps a white *dissitiflora* will do the same. Still, it may be fixed if grown remote from blue kinds. It is well known that a white-flowered *Lobelia* will produce all white progeny; indeed, as a rule, two-thirds come blue. If the Myosotis were to exhibit the same fault, it would be very disappointing. Mr. Fish remarked, the other day, that all the larger forms of *dissitiflora* produced flowers in which the blue tint was less marked than usual. This is, I think, strictly true; but it is possible that constant seeding and saving from the bluest flowers would bring on large-flowered forms a return of the much prized colour. None of the so-called large forms have really larger flowers than is found on well-grown clumps of the old kind, but the petals are broader and more symmetrical. I find this feature particularly marked in the selection which I have, and I think that it will be enduring.—A. D.

Select Dahlias (p. 302).—"Q." will find the following a really good selection of show and fancy Dahlias, viz.: Alexander Crumond, maroon, shaded crimson; Chris. Ridley, glowing crimson;

John Wyatt, crimson-scarlet; James Cocker, large, purple; Henry Bond, rosy-lilac; James Service, dark crimson; John Neville Keynes, yellow; John Standish, bright red; Mrs. Henshaw, white; Rosy Morn, clear rose; Prince Bismarck, puce, shot with purple; and Ovid, rich puce, a superb flower. Fancies: Oracle, deep yellow, striped with crimson; Mrs. Saunders, yellow, tipped with white, a lovely flower; Lucy Fawcett, pale yellow, spotted with crimson; Fanny Sturt, red, tipped with white; Florence Stark, white, striped with purple; Henry-Glasscock, buff, striped with crimson; Galety, yellow, striped with red; Frederick Smith, deep lilac, striped with purple; Monsieur Chauviere, lilac, spotted with dark crimson; Peacock, purple maroon, tipped with white; Queen Mab, white, with scarlet edge; and Robert Burns, lilac, flaked with crimson.—A. D.

Miles's Hybrid Spiral Mignonette.—I am glad to find that this Mignonette is receiving the notice it so justly deserves, as unquestionably it is one of the best, if not the very best, of the varieties in cultivation, and of great value for pot culture, sending up, as it does, fine spikes of flowers, the odour of which is delicious. The old *Reseda odorata*, so great a favourite years ago, is eclipsed not only by Miles's Spiral, but by Parsons' and R. odorata grandiflora and pyramidalis, all of which are larger and stronger and quite as sweet scented. By sowing any of these in the open ground at once, they will flower and seed in time for sowing in pots to stand the winter, and come in early for the embellishment of greenhouses or conservatories, and for affording cut bloom. The way to have Mignonette good for either of these purposes is to well drain the pots with broken crocks, and scatter among them a good pinch of soot, which not only keeps out worms, but stimulates the roots, and causes the plants to become deep green in colour, maintaining them healthy and strong. The soil best adapted for growing fine Mignonette is rich fibry loam, which should be put into the pots very firm, and the seed sown thinly on it, and slightly covered; when up, all weakly plants should be pulled out, so as to leave the others as regular as possible, and about five or six in a 7-in. pot. The most suitable place for Mignonette during summer and autumn is in an open sunny spot outdoors; but, when heavy rains set in, it is necessary to have it under cover of a cold frame, where the lights can be tilted, so as to afford it plenty of air and prevent it from drawing. The thing to be most particular about is over-watering, which Mignonette is very impatient of till the pots are well filled with roots, when it will take more, and is greatly benefited by frequent applications of clear liquid manure. During winter, the best situation for it is on shelves near the glass, where it can have full light, and a degree of heat ranging anywhere between 40° and 50°.—S. D.

Purple-flowered Wood Sorrel.—In one or two notes which have lately appeared in THE GARDEN this has been mentioned as a new or rare variety. It may have been neglected and lost sight of, but was well known to botanists many years ago. I think I have heard of it as long as I have noticed wild flowers, and when collecting plants for rockeries two or three years ago I received it from a neighbour, who did not offer it as anything new. It increases fast, and I find that many to whom I have offered it know it well already. This week I have been staying in Worcestershire, and came across a book on local flora, at least twenty years old, which mentioned a wood in the neighbourhood in which it was to be found. I went there to look for it, and at once found it in plenty within a few yards of the turnpike road. In travelling from Shrewsbury to Worcester I was surprised to observe the abundance of *Myosotis sylvatica* along the side of the Severn nearly the whole distance; most of the woods were quite blue with it, though it is stated in Sowerby's "English Botany" that Derbyshire and Staffordshire are its southern limits in England.—C. WOLLEY DOD, Edge Hall, Malpas.

INDOOR GARDEN.

SOME SPECIES OF FUCHSIA.

BESIDES the endless number of Fuchsias which come under the head of florists' flowers there are many original species that deserve attention; for

*Fuchsia corymbiflora.*

although possibly not so showy as the florists' Fuchsias, yet many of them possess both grace and beauty, and others, such as procumbens and exorticiata, quaint and curious flowers, while large and showy blossoms are furnished by such kinds as corymbiflora and fulgens. Some of them, too, flower in winter, noteworthy amongst which are splendens and serratifolia; some hybrids, too, lately raised are very valuable in this respect. Of the kinds of which the annexed are illustrations, *F. corymbiflora* is stout and vigorous in growth, producing great pendulous bunches of long-tubed scarlet flowers, rendering a well-grown plant of it a bold and striking object when in blossom, and scarcely less so when the flowers are succeeded by large oblong reddish purple berries. Being a strong grower the most suitable place for this Fuchsia planted out in a cool house in which there is plenty of room for it to develop itself; it may also be grown as an upright bush secured to a single stake, or used for covering pillars, roofs, and similar places. *F. fulgens* is likewise vigorous in habit, but more compact than *F. corymbiflora*, therefore it may be grown in pots; but it, never-

*Fuchsia fulgens.*

theless, flowers much more freely where it has sufficient top and root room to enable it to attain a good size. Of this there is a variety called multiflora pumila that is very compact and free flowering, and therefore more suitable for pot culture than the common form. The old *F. gracilis* is generally looked upon in the light of a hardy her-

baceous plant, being killed as a rule down to the roots in winter, and pushing up fresh shoots again in spring. Huge bushes of it may be seen out-of-doors in the south and west of England, and very beautiful they are, but even where not hardy, it would be difficult to select a plant to surpass it for covering the pillars or roofs of conservatories. Under such circumstances the blossoms hang down in the greatest profusion, and as they continue to be produced during the whole of the summer, even few Fuchsias approach it as regards duration of flowering. There is a form of it in which the leaves are edged with creamy white, but on the whole the ordinary kind is the best; this may be seen any time during the summer in the No. 4 greenhouse at Kew. *F. microphylla* is a veritable pigmy, but, nevertheless, when grown in pots in the form of compact little bushes about 18 in. high and thickly studded with miniature blossoms, it is very pretty for covering pillars. A nearly allied species (*F. thymæfolia*) is to be preferred, as it is of stronger growth, although the flowers and foliage are as small as in the case of *microphylla*.

Other notable kinds are *F. Boliviana*, a fine showy plant, nearly allied to *F. corymbiflora*, and, like it, very suitable for training under roofs; indeed, mention was recently made in THE GARDEN of the beautiful sight afforded by this Fuchsia so treated in the gardens at Chiswick. *F. exorticiata* may be classed as a curious rather than as an ornamental species. Its shape is that of a somewhat spreading bush, and the flowers are in form very much like those of the better known, but more recently-introduced *F. procumbens*; the colour of the tube is green and purple, and the petals bluish. The flowers are produced from the old wood, and not on the young growth, as in the case of most kinds. *F. pendulæfolia* is in habit free; indeed, almost rambling; its leaves are large with a pinkish midrib, and the bright crimson pendulous flowers measure 3 in. or 4 in. in length. For covering a large space quickly this species is well adapted, and it flowers freely in most situations. The trailing habit of *F. procumbens* renders it very distinct from all others; it is most effective when grown in a suspended pot or basket, from which the branches hang gracefully down for some distance. The flowers though small are interesting, the tube being yellowish, and the reflexed upper portion bright blue. Its fruits however, form its most prominent feature; they are large, oval, and magenta-crimson in colour, and remain on the plant during the whole of the winter. It also succeeds planted out on rockwork, and if sheltered a little frequently survives the winter. *F. serratifolia* is stout and free in habit, and like *corymbiflora*, better adapted for planting out than for growing in pots. A great point in its favour is the fact that it flowers during the winter months at the same time as *F. Dominicana*. The latter (a hybrid raised between *F. serratifolia* and *spectabilis*) where planted out, and growing freely, is very attractive. *F. spectabilis* at one time common, is now seldom seen, although it is really a handsome plant. Like *F. serratifolia*, it is almost too vigorous for pot culture, but there are some of the same class lately raised, which have short compact growth, and which flower freely in a small state. They are, Charles Darwin, Dr. Gordon, and Edouard André. *F. splendens* is also a winter bloomer, but very distinct from any of the others. The leaves are cordate; the tube of the flowers is bright crimson tipped with green. This does well either planted out or in pots, but if in pots it flowers much better if from the time the cuttings are potted off they are kept growing freely, but cool, and then on the approach of winter introduced into a temperature rather above that of an ordinary greenhouse. Thus treated they will continue to flower for a long time. H. P.

The electric light and vegetation.—*Les Mondes*, in a paper on "The Illumination of Conservatories by the Electric Light," states that the naked rays were found to be injurious to the

plants, but the light having passed through glass globes did not appear to affect them. Nocturnal illumination is not fatal to plants, but there is no proof that it is beneficial. Upon the whole, M. l'abbé Moigno says, the results obtained at the Palace of Industry were not favourable.

BEGONIA FUCHSIÆOIDES.

WHEN well grown this is one of our best and most free flowering Begonias both in pots and

*Fuchsia gracilis.*

planted out. It is an excellent plant for covering trellises or pillars in greenhouses or conservatories. It succeeds in almost any position, provided it gets a certain amount of sunshine to ripen the young shoots. During the winter months this plant is seldom out of flower; in short, it keeps flowering more or less during the whole year round. Cuttings of it may be rooted at any time of the year, but early in spring is the best time for propagating this plant. They may either be placed singly in small pots, or several together may be put into larger pots. The soil, which should be finely sifted, should consist of loam, leaf mould, and a little peat, adding plenty of sand to keep the whole porous. After filling the pots with soil loosely, put in the cuttings, making them firm, and watering them with a pot furnished with a fine rose. Place the pots in a house or pit in which there is a temperature of from 60° to 65°, and in bottom heat if convenient. Thus

*Fuchsia microphylla.*

treated, the plants will root in a few days. Later in the summer they will root in a cold pit or frame, and make good plants for flowering early the following spring. Pinch off the tops of the young shoots several times during

their growth to induce them to become bushy. Cuttings rooted early in small pots should be potted onwards as soon as they are ready for a shift, and in the case of those which have been rooted several together in one pot, they will require to be potted separately. When well rooted, the soil which I find suits them best is a mixture of equal parts of good turfy and peat, broken into pieces about the size of Walnuts, some sifted leaf mould, and plenty of sharp silver sand to keep the whole compost open. The roots of this plant are very impatient as regards wet or sour soil. They will need a shift as often as they fill their pots with roots, until they are transferred to those in which they are to bloom. Good sizes for general purposes are 6-in. and 8½-in. pots.

The flowers of this Begonia withstand the effect of gas better than those of other plants which I have used for house decoration. When well cared for in summer the plants will begin to bloom early in autumn. Where boxes are used for plants on trellises they should be made 18 in. deep and 2 ft. wide; the length must depend upon the space at disposal. If only one plant is to be put into each box, 3 ft. will be a good size, and will be found to be large enough for a number of years. Holes must be made in the bottom of the boxes in order to ensure efficient drainage; place 4 in. of crocks or broken bricks in the bottom, and cover them over with some thin sods, partly rotten, or pieces of rough peat, which are equally good. The compost for boxes should consist of old turf, chopped pieces rather lumpy; peat also in lumps, and a portion of sifted leaf-mould. The turf and peat may be used in equal portions, adding a good quantity of sharp silver sand. Plants one or two years old should be planted if at hand, as they soon cover the trellis; but if not, young plants bought from a nursery will answer. The tops should be pinched several times the first year after they are planted in order to induce them to produce plenty of strong side shoots. Where borders can be used they are better than boxes, which are often objected to, as being unsightly in a well-kept conservatory.

In making the border it should be 2½ ft. deep and 2 ft. wide. The bottom should be made to slope gently to one end, laying a row of drain pipes the whole length, and carrying them into a drain or other outlet, bottom with broken bricks 12 in. deep, and cover them with some rough material. Then fill up with the same compost as that used for boxes, only a little rotten manure may be used and a less quantity of sand. When well cared for the plants will soon reach the height of 20 ft. to 30 ft., and will be a grand sight when in full flower. I saw several plants lately about 25 ft. high growing upon pillars, one of the grandest floral sights anyone could wish to see. Moreover, bushels of cut flowers can be cut during the season for house decoration. WM. CHRISTISON.

HYDRANGEAS IN CONSERVATORIES.

Two beautifully flowered Hydrangeas having been sent to us a short time ago by Mr. Charles Bennett, from Besborough, he was asked to furnish an account of how they were grown for THE GARDEN—a request with which he has kindly complied as follows: The common Hydrangea makes a useful and showy decorative plant for the spring months, and one that possesses the advantage of being, as it were, insect proof—a great recommendation. Cuttings struck in March or April make handsome plants in twelve months, and are useful in the conservatory or for other indoor work. A good way to produce satisfactory plants is to take cuttings

during the months named, selecting the short stout growths (with plump centre bud) which spring from the base of old plants in heat; place each cutting in a 2½-in. pot in a mixture of light soil in which there is plenty of sand, plunge them in a propagating house or hot-bed, and as soon as rooted lift them out of the plunging material a day or two previous to potting them into 4-in. or 5-in. pots—those in which they are to flower. A good compost for them is two parts loam, one leaf-soil, and a dash of coarse sand. When potted keep them close for a few days in an intermediate temperature, increasing air given gradually until May or June, when they may be set out in full sunshine plunged in ashes. The chief aim must be to keep them dwarf and sturdy, as on that, combined with the wood being well ripened, depends their flowering in a satisfactory manner. The central growth bud should while growing in summer be as plump as one's thumb, and the leaves stout and leathery in texture. While out-of-doors the plants will require an abundance of water, and when the pots are full of roots, weak manure water should be given at intervals. I am of opinion that the roots of many plants are ruined by administering too strong doses of liquid manure to hard pot-bound plants. Towards the end of summer the supply of water may be lessened and the manure water entirely dispensed with; the growths being thus encouraged to ripen will cast their foliage, and the plants will go to rest; then remove them to a cold frame, or, better still, a cool dry house, such as a vinery at rest, keeping them rather dry.

If required to be in perfection in March, start a few of the plants in November; the pots being well washed, place them in an intermediate temperature close up to the glass; there they will make slow, but sure progress, and the flowers will acquire a beautiful pink colour. Here also they will need the same attention as regards keeping them sturdy and giving them manure water. Where it is desired to have only a single stem, the side shoots springing from the base must be removed, and may be used to increase the stock. Full energy will thus be thrown into the centre growth. Treated thus, we get very large heads, and find them most valuable for boxes and placing in groups in halls, &c., but for conservatory work the whole of the shoots had better be retained, and, provided they have been judiciously grown and ripened the previous summer, they will each produce a head nearly as large as the central one. We have plants here now treated as above with a dozen or more heads of bloom on them of a beautiful pink colour, set off by handsome green foliage—in short, specimens admired by all who see them.

Abercorn Nursery.—Amongst the various hardy plants grown by Mr. Munro in the Abercorn Nursery, near Edinburgh, are the following, viz.: *Arabis blepharophylla* superba, a variety with bright purple flowers; *Calceolaria Kellyana*, *Cineraria macrophylla*, *Gentiana ornata* and *eximia*, the true *Primula viscosa*, a beautiful little *Primula*, and quite distinct from *P. helvetica* (villosa); and *P. Lindsayi*, with deep purple flowers, an excellent hybrid, from *P. ciliata purpurata* crossed with an alpine *Auricula*; associated with these were also the old blue *Polyanthus*, perhaps more curious than pretty, but worth growing; *Callixene polyphylla*, with Lily of the Valley-like flowers (not yet in blossom); *Parnassia nubicola*, an Indian species; *Euphorbia amygdaloides* variegata, with pretty foliage; *Narcissus cernuus* fl.-pl., rarer, but less pretty than the single form; and a little white quilled double Daisy, tipped with rose, a very distinct variety given to Mr. Munro by the late Miss Hope, after whom he has named it. The Abercorn white

Viola seems to be an excellent bedding kind already beginning to flower; the blossoms are very white and of good size and shape. Bulbs of *Pleione Wallichii*, *P. Hookeri*, and *P. maculata*, which were sent when dormant by Oriental parcel post from Darjeeling, arrived perfectly fresh, and are now growing well in an unheated greenhouse. Mr. Munro mentioned a curious instance of the hardness of Dahlias growing in a neighbouring garden. Accidentally they had been covered by about 1 ft. of earth; the roots are probably now about 2 ft. deep, and the plants have lived out-of-doors for about fifteen years, and begin to flower in July; but only red Dahlias survived this treatment, some of other colours having died.—C. M. OWEN.

GARDEN FLORA.

PLATE CCCXXXVII.—CATTLEYA GIGAS.

ANENT this plant a successful collector tells me the following story: "I was on its track I knew well, and I stopped that night at a little roadside posada, and for once in South America I fell among people who were the reverse of pilferers. At sunrise I was awakened by a sturdy old rooster, and soon found my way outside the hut. A few minutes' walk through the little compound brought me to the forest I had ridden so far to explore. I followed a little path evidently used by the residents of the hut, and soon reached a waterfall tumbling over a mossy rock. On a little low tree before me I suddenly saw a sight I shall never forget—a *Cattleya* of the most lovely flesh tints flashing and fluttering in the early sunlight. The gnarled old dwarf of a tree was completely covered with plants of all sizes, and nearly all were in bloom. The plants were in all positions, firmly held by great thong-like roots to the rough bark. My first resolve was to go back to the hut and bring assistance to cut down the tree and secure the plants. What an act of sacrilege it seemed! No; I would go back to sacrifice first. A morning's walk in a New Granadian forest alive with birds and insects, when every twig and leaf is dripping with dew, is an experience no pen could describe. Elated by good fortune, and invigorated by the fresh air, I made short work of my breakfast. I congratulated myself on being the only collector who had ever seen this part of the country, when, chancing to turn my head, I was surprised to see a straight-limbed European with a troop of native followers entering the forest. 'Who is that?' said I to my man Pedro. 'Gentleman look for tree plant, sir.' Alas, it was too true; while I flattered myself that I was the only collector within a hundred leagues, here was a man had lived for a whole week on the spot, and, hearing of my arrival, he (as he afterwards told me) only waited for the sun to lick up the dew a little ere he went to fetch in the *Cattleyas* off the little tree which I fancied I had discovered this morning, but which he had really seen and purchased from a native a week ago. The plant was *Cattleya gigas*, and I often wonder under whose glass roof those identical plants are living now."

Cattleya gigas was originally discovered by M. Roez, and is a native of New Granada, being, moreover, of comparatively recent introduction. When in bloom it is undoubtedly one of the finest of all the *Cattleyas*. It is fortunate that recent importations have been so plentiful, that it is now within the reach of all who grow Orchidaceous plants. It is a plant easy to establish if tied firmly on a block of Apple, Pear, or white Thorn, and hung in a warm, airy temperature where it can be syringed frequently. Roots soon protrude, and the eyes swell up gradually, and so produce good, sound growths. Just before roots are emitted by the young growths



CATTELYA GIRAS

themselves the blocks should be inserted firmly into pots, using crocks and charcoal with which to fill up the pots very nearly to the rim. Then cover with about 1 in. of peat fibre and living Sphagnum Moss, torn up into shreds, and settle it over the surface by a good watering. When finished, the bases of the young growths should be level with the top of the compost, and too much water should not be given until the young roots have acquired some degree of growth and hardness. Treated in this way, the plant soon establishes itself. Some growers prefer tenk baskets to pots, the roots fixing themselves like thongs in and around the bars of wood of which they are made. The plant likes a decided season of rest. A plant here has rested since last October, and has only lately pushed up a stout flowering growth. It is growing on a block in a pot, but is suspended near the roof.—F. W. B.

Mr. E. Fowler, of Ashgrove, Pontypool, who sent us the specimen from which our illustration was prepared, thus describes his mode of treating this species:—

"We grow this lovely Orchid in a pot placed on a shelf near the glass, in company with *C. Dowiana*, in a span-roofed cool stove, where, in the growing season, there is a day temperature of from 70° to 75°, and on sunny days 85°, falling at night to 65°. The only shading used is a thin scrim canvas roller-blind, just sufficient to break the sun's rays. Plenty of ventilation is given on warm days both at top and bottom, and less on cool, dull days. A moist atmosphere is maintained by damping the floor and staging. In winter we remove it to the Cattleya house, so as to give it a long rest, returning it to the stove when it shows signs of growth in spring. The plant which produced the flowers sent was an imported one bought of Messrs. Low in April, 1880. Its first growth produced two flowers; last year it broke double, giving two flowers on each growth."

NOTES AND READINGS.

INFORMALLY TRAINED GREENHOUSE PLANTS.—At the last Edinburgh show Messrs. Downie & Laird displayed a collection of free and naturally grown Azaleas that are said to have cast the formally trained specimens one has been accustomed to see at that and other exhibitions into the shade, as had been predicted would happen when any exhibitor was bold enough to enter the lists with good informally trained plants. Messrs. Downie & Laird deserve thanks for showing the way in this direction. For once let it be understood that formal pyramids, balloons, umbrellas, and other fantastic shapes are not essential in exhibition specimens, and cultivators will only be too glad to avail themselves of the privilege of showing plants in their natural shape, more especially as it is well known that that shape permits of a healthier and better development of the plant in every way. What has for many years been condemned as bad taste in the garden cannot surely, on any pretence, show itself on an exhibition table where one expects to find the best examples of everything.

ORCHID COMPOSTS.—It is an open question whether the kind of compost used for potting Orchids is a matter of so much importance as some think. No doubt Orchids must have some kind of rooting medium, but what it is they subsist upon actually nobody seems to know. The success of some growers with certain popular composts will no doubt be pointed to as proof of their value, but it is probably true that more fail than succeed with the same compost. It seems to be more a question of the quan-

tity of the compost used and after-management than any particular virtue in the compost itself. No cultivator can see those splendid imported masses—*Dendrobiums*, for example, with fifty and sixty magnificent bulbs upon them—that seem to have subsisted for years upon nothing more than the air and their own decaying roots, without asking themselves such questions as the above. Few, or none, of the fine masses imported lately had as much mould about their roots as would have filled a tobacco pipe—nothing but an interlaced mass of roots that had been severed from their naked seats on the bare limbs of the trees. Masses of bulbs of *Dendrobium formosum giganteum* of this description were incomparably fine and strong, and had flowered most abundantly. It cannot be right under our dull skies and artificial conditions to pot such plants in a spongy mass of peat and Sphagnum, as nine out of every ten Orchids are potted, resulting in ill-ripened and barren bulbs, of which one hears so many complaints. Provided epiphytal Orchids have a firm seat, it does not seem to matter much what the rooting medium is like, provided it is clean, wholesome, and will hold moisture. A bulb set upon a bare board, covered by a thin coating of Sphagnum Moss, seems as much at home as anywhere else, and is much better under command both at the growing and resting periods. The pot system of Orchid culture referred to before is convenient, but the pot itself is not essential; any other contrivance better adapted to the purpose would do just as well.

THE TRUE MYOSOTIS DISSITIFLORA.—A seed grower writes me, "I send you examples of the true *Myosotis dissitiflora*, which is a real gem. Unfortunately, a great deal of the *M. dissitiflora* put in circulation is only sylvatica, and it is a great pity it is so." This, there is good reason to believe, is true of more popular hardy flowers than the *Myosotis*. There are, however, good and bad varieties of *M. sylvatica*—like many plants propagated from seed—some varieties being both larger and brighter in the flower than others, and some of a denser habit of growth and more effective when in flower.

FORSYTHIAS.—"Walls are not the proper places for these" (p. 275), but an exception should be made in the case of *F. suspensa*, which is probably more at home on a south wall than anywhere else. It is a rapid grower, making long, supple, wand-like shoots 5 ft. long in a season, that need support, which they have on a wall. The finest specimen of the kind I have ever seen was grown on a wall and freely trained, covering a great expanse of surface in the space of a very few years, and flowering profusely from top to bottom, coming in almost before anything else in the way of early flowering shrubs, and lasting weeks in perfection. Some years ago it was highly recommended to us by Mr. Parker, but it is not grown so often as it should be. It beats the *Jasmine* completely.

HARDY, BUT NOT OUTDOOR PLANTS.—In a garden in the midlands where the fine old *Dielytra spectabilis* has been grown in the open borders for ten years, it has not once brought its flowers to perfection, owing either to late frosts or cutting winds. Its tender flowers and foliage cannot stand either. It is one of those subjects for Mr. Burbridge's "cool houses" that he wrote of once. In such quarters it forms a magnificent object during March and April, growing tall, stately, and graceful—worth a house to itself, but outside it is a sorry spectacle. *Spirea japonica* does very little better outside,

and is probably never seen out-of-doors in a form that one would recognise it to be the same as the beautiful forced plant of that name, with its snow-white plumes and feathery foliage. Their roots will stand our coldest winters with impunity, but our springs are too cold and biting for the flowers. The best thing that can be done with both is to grow plenty of roots outdoors and force the plants under glass; they need no other preparation, as both are floriferous enough in the coldest localities. There are not a few other subjects of the open border to which the same remarks apply.

GRASS LAWNS.—How much the pleasure of some gardens is lost at this season of the year through ill-kept lawns. The Grass should look its freshest and best in spring, provided the lawn mower is not allowed to rust in idleness, which happens more frequently than is desirable at the busy season from want of labour. In a large garden not long since—an example of not a few, I am afraid—we saw a spacious lawn in front of the mansion, and surrounded by ornamental plantations in that condition so vexatious to the gardener's heart—uncut, rough, and littered over by the broken twigs and sticks of trees and full of wormcasts. "No time to cut it, and do not see any prospect of getting at it till June," was the gardener's lament. A great mistake is this neglect of the Grass, entailing so much scythe work and after-clearing before the lawn mower can get to work. It is the least economical plan too, and a sure way of increasing the Daisies and other noxious weeds—for a Daisy is a weed on a lawn, and thrives better there than anywhere else, once it gets a footing. The way to keep the sward clear of weeds is to start the mowing machine in time and keep them from seeding. The scythe work should be abolished as far as possible. It has no business to be where the lawn mower can get to work. Probably nine lawns in ten are formed of the turf of the locality, and on the red sandstone and limestone formations the turf is often of very uniform quality and clean, but on other soils it is as a rule coarse and never makes a good sward. By seed is the only way of accomplishing this, and wherever this plan can be adopted it is the preferable one—always provided that the seed is good and the ground well prepared. The advantage of a good bottom, deep and rich, is seen in winter and spring more than at any other season, for the Grass under such circumstances is always thickest and greenest. Poverty is the common cause of bad lawns, and the best soil will become exhausted in time under the lawn mower unless the cuttings are left on the ground, an excellent plan and no way objectionable when the lawn is cut as often as should be. Without this dressing periodical manuring is absolutely necessary.

EXTEMPORISED WILD GARDENS.—I see that at one of the fashionable watering-places in the south a furzy down has been converted into a "wild garden" in name and reality, and is described as a most pleasant haunt for visitors. It is one of the advantages of wild gardening that it does not entail much planning and making; at least there are wide limits to the scope of the operator in that direction. There are numbers of parks, and even gardens, public and private, where a little wild gardening might be attempted with great advantage and at little cost. At one rising watering-place on the west coast a private speculator in the horticultural line first planted a viney to grow Grapes, and on second thought leased a considerable extent of the sand-hills that form such a bold feature of the coast, which he turned into a little paradise to

attract visitors to eat his fruit, all the gardening effects having been produced by the simple and cheap process of planting the sand-hills with suitable subjects. By-and-by the designing of parks and gardens will not tax the landscape gardeners so much as the planting of them with suitable hardy trees and flowers. There is no fault to be found with the design in many instances, but the poverty of the furnishings cannot fail to strike the most casual observer.

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SINGLE & DOUBLE TULIPS.—According to our thinking, single Tulips quite surpass double ones for all outdoor purposes. They are earlier, hold their heads up better than the double ones, which become top-heavy and haggard looking, and stand the weather better. The ideal Tulip of the florist is an open cup, concerning the shape of which there has been a century of discussion; but the single Tulip is oftener seen with its petals folded in the shape of a cone or a bud, in which state it is one of the handsomest of border flowers, and a perfect gem on the Grass, for which purpose we should recommend no other kind to be employed.

PEREGRINE.

PROPAGATING.

Fine-leafed Begonias.—Wherever shoots can be spared for cuttings they root without difficulty, but if it is desired to propagate them extensively, or the stock is limited, they may be easily increased by means of leaves, and for this purpose mature leaves are best, as if too succulent they are apt to decay. After separating them from the plant lay them on the bench and cut them up into several pieces. In cutting them up commence at the leaf-stalk and continue outwards to the edge, taking care to have a prominent vein in each wedge-shaped piece. The parts of the leaf thus divided should then be inserted in well-drained pots of sandy soil after the manner of cuttings, that is to say, in a perpendicular position, and with about 1 in. of the base or pointed end buried in the soil. Then water and place them in a close case, shaded during sunshine, when after a time buds will be formed on various parts of the cut edges, and these in their turn will produce young plants, which, owing to the moisture in the case, will push forth roots even when not in contact with the soil. When strong enough they should be taken off and potted singly. Another method about equally good is laying the leaf on a pan of sandy soil, or, better still, on Cocoa-nut fibre, in the case, pegging it down in three or four places, so that the whole of the underside may rest in the soil or fibre as the case may be. After this is done, take a knife and divide the principal ribs at intervals of about 1 in., when from the divided parts young plants will be produced and root at once into the soil.

Begonia Rex and its varieties are easily propagated in this way, but the many fine hybrids between *Rex* and *B. discolor*, of which *A. Carrière* and *Edouard André* may be cited as examples, produce buds sparingly. Having, however, the branching habit of *B. discolor*, shoot cuttings may be easily secured, and these root readily. If leaves are kept too moist they are liable to decay; therefore it will be necessary to give air at times; indeed, I have seen good results from some that were never placed in the propagating case at all. They were treated as follows: In a stove set aside for Palms, plunged in a bed of Cocoa-nut fibre, there was plenty of space between the pots; the leaves accordingly were placed thereon, and but little attention paid to them. They were well shaded by the overhanging Palms and damped two or three times a day when the place was syringed; yet withal they struck beautifully, thus affording another instance of an often recurring fact that at times cuttings with which the least pains are taken are the most successful.

Winter-flowering Begonias.—The present is also a good time for striking shrubby winter flowering kinds, such as *fuchsioideis*, *hybrida*, *floribunda*, *foliosa*, &c. For this purpose choose young shoots, put them in sandy soil, give a good watering and keep them close, when they will soon root if not overwatered. The first watering should be a thoroughly good one, to settle everything in its place, but afterwards beware of keeping them too wet. Where tuberous kinds have been pushed on in a little heat, cuttings may be secured, which will root under the treatment usually given to soft-wooded plants, viz., cut them off just above a joint, so as to leave an eye to break from, and put them in up to the base of the leaf, keeping them, of course, close till rooted.—H. P.

Double Primulas kept somewhat close for the last fortnight will now be in good condition for cutting up where that method of increasing them is carried out, and it certainly possesses one great advantage over layering, inasmuch as every shoot can be made into a separate cutting, thereby admitting of a more rapid increase than layering, although where but few inconveniences exist the latter method will be the safest. In cutting up the plants turn them out of their pots and shake the soil carefully from the roots; then with a sharp knife divide them into as many pieces as there are crowns, and wherever possible leave some of the roots attached to them. If care be taken, a great many rooted pieces will be thus obtained, which should be separated from the ordinary cuttings. All decaying matter must be carefully removed before putting in the cuttings, as the closer atmosphere will induce it to spread. For soil use two parts leaf-mould, one of loam, and one of sand, all well incorporated together, and pots as small as possible; 2-in. ones are the most convenient. They should be clean and well drained. Insert the cuttings up to the bottom-leaves, but on no account bury any of the leaf-stalks; if the buried portion of the stem is not sufficient to support the head, it should be tied to a small stick; indeed for the sake of safety, it is better to secure the whole of them in that way. Each pot must then be separately watered, but do not wet the leaves or crown more than is necessary, and after the superabundant moisture has drained away set them in a close case in a temperature rather warmer than that of an ordinary greenhouse. The lights must be taken off for a time every morning, and, unless the foliage shows signs of flagging, may, if the house is somewhat close, be left off during dull weather, but when the sun shines they must be put on and shading applied. Damping, if it occurs, is often arrested by giving plenty of air to the cases during the night when the atmosphere of the house is sufficiently close. All the rooted pieces should be potted in the same soil, and treated much as the others, except that it is not necessary to keep them so close, and as soon as they start they must be hardened off. Before layering, give the plants a good cleaning, then earth up the stem as far as possible with fibrous loam to which a liberal amount of sand has been added. The soil may be kept in its place by means of a few pegs, and a slight incision in the stem will be of service in inducing the formation of roots.—T.

Propagating show Pelargoniums.—I find there is no better time in the whole year for propagating what are called show Pelargoniums than the month of May. The young growth at this season is in the best possible condition for emitting roots. The side shoots should now be taken off and made into cuttings; three joints will be ample for each cutting. The pots for their reception should be 4 in. in diameter, and a few crocks should be placed in the bottom of each for drainage; any light soil in which there is a fair proportion of sand will serve for a compost. When putting in the cuttings press the soil firmly about them; then they should be gently watered. A hot-bed is the best place in which to strike them; they should have a temperature of from 70° to 80°, and should be shaded from bright sunshine until rooted. They also strike freely in a propagating frame if not kept too dark and too damp; I mean such frames as are inside another structure. I

have omitted to say that three cuttings may be placed in a 4-in. pot, but where there is plenty of room I should prefer to put them singly in 3-in. pots. When rooted they must be shifted on or potted off as the case may be, but it is not advisable in doing this to use very large pots; at no time, indeed, do Pelargoniums like being over-potted. After they are potted off a warm close pit or frame is the best place for them for a few weeks—in fact, until they have grown sufficiently to require topping; when that is done they may be taken to a light, airy pit or greenhouse stage, and as soon as they have made side shoots 1 in. long they should be shifted into larger pots and topping the shoots must be continued. In this way fair-sized specimens may be obtained for flowering next year.—J. C. C.

Caladiums, of which cuttings were taken a month or more ago, will now in many cases have thrown up shoots from the buds which were then dormant, and if required for purposes of increase, they should be taken off and treated as before. If the old crown is covered up with soil and replaced in heat, it will soon break out again.—F.

Rubus rosæfolius fl.-pl.—This beautiful flowering Bramble, especially if it has been kept rather warm during the winter for the sake of its blossoms, will now be starting freely into growth and pushing up from the base Raspberry-like shoots, which strike readily if taken off at a length of 3 in. or 4 in. while still young and soft and inserted singly in small pots. They must be kept close, but beware of too much heat, or it will be impossible to keep the foliage free from red spider, while on the other hand a little heat is necessary, or instead of rooting they will damp off.—T.

TREES AND SHRUBS.

DWARF CONIFERS FOR POTS.

A GREAT many Conifers are suitable for pot culture, especially the dwarf forms, and the uses to which they may be put are endless; they are, as it were, always in season, fresh and cheerful looking, and constituting a reserve to fall back on whenever required. In window boxes, balconies, or corridors their hardness enables them to succeed where more tender subjects would perish, and that they are often selected for such purpose is shown by the numbers brought into Covent Garden Market during autumn and winter. Most of them are, however, roughly lifted from the open ground and placed in pots without any care, and therefore they soon become unhealthy and often die. The better way is to confine them entirely to pots in which, owing to the slow rate at which they increase in size, they may be kept for a long time without requiring increased root room. In potting, use good loam, and pot firmly. As they will be principally required during winter, in summer they should be plunged up to the rim of the pot in the open ground, but not deeper, as in that case it would be difficult to ascertain their condition as regards moisture. When plunging, place a handful of ashes at the bottom of the hole to keep out worms. Amongst Finuses there are several miniature forms, but they are not well adapted for pot culture; of the genus *Abies*, *ericoideis*, *pygmaea*, *clausbrasiliana*, and *gregoriana*, all dwarf varieties of the Norway Spruce (*A. excelsa*), do well. It is, however, principally among the Cupressaceae that kinds suitable for pot culture occur. Three *occidentalis* *Elwangeriana*, and *Hoveyi* are well adapted for that purpose. They are two dwarf forms of American origin. To these may be added *T. Vervaeana*. It can, however, scarcely be called dwarf, being of medium habit of growth, but it is invaluable on account of the golden and brown tints of its foliage. *T. plicata dumosa* or *nana*, a little dense globular bush resembling a pigmy form of the American *Arbutus* (*T. occidentalis*), makes a good pot plant as does also *Biota orientalis aurea*, the golden *Arbutus*-vitis, of which the form known as *sempervirens* retains, as its name supplies, its golden

huc the whole of the season. The dwarf bright green Zuccariniana is also worth attention for the sake of variety. Several dwarf forms of Cupressus Lawsoniana are likewise suitable for pot culture, the deep green Lawsoniana nana having a glaucous counterpart in nana glauca, while a light ashen green colour is afforded by C. nutkaensis compacta, a globular growing bush. Of the Junipers, excelsa stricta, from its upright form and greyish colour, is very distinct; and of the others, Sabina, chinensis aurea, and japonica are all suitable. The Retinosporas as a class succeed better than any other Conifers under pot culture, and furnish plenty of variety both as regards form and colour. As an example of the various tints to be found amongst them, mention may be made of the brownish purple winter hue of R. ericoides, of the extremely glaucous look of R. squarosa, the light green colour of R. obtusa, compacta, nana, and pygmaea, and the bluish grey aspect of the fastigate R. leptoclada. R. pisifera aurea and alba, and the same varieties of R. plu-

done flowering, the point being to catch them before they begin to form their young shoots, which, if made first, are so tender and soft that they flag and become injured thereby. Being early this year, I moved some large plants before they bloomed, and though they have not opened their flowers freely, they are all doing well. In planting at any time the soil should be thoroughly washed in about the roots by using plenty of water during the filling in, and when this is complete it is important that the soil be mulched to prevent any cracking of the earth and to keep in the moisture.—S. D.

The Blue Gum Tree out of doors.—This is the first winter I have been able to grow this Eucalyptus out of doors; even young tender plants of it used in last year's bedding are fresh and growing rapidly, and if we get a succession of favourable winters, so that the stems may get hard, we may yet see this Eucalyptus attain goodly proportions in the milder parts of this kingdom. Whatever the virtues ascribed to this purifier of the atmosphere may be, its peculiar grey tint renders it well worth a place in gardens where a great variety of foliage is appreciated. Anyone wishing to give it a trial should now get a few seedling plants of it if they have not taken the precaution to sow seed. They should be planted out in good soil at the end of May; or, better still, if they have a large old plant in a pot, get it gradually inured to the open air, and plant it out in a position sheltered from cold winds, but open to full sunshine. Do not give it very rich soil, as the object is to get short-jointed, well-ripened wood. The young plants require exceptional precautions as regards staking and tying if it is desirable to get them up to a maximum height, but for flower garden decoration they are more serviceable cut down in autumn, and the old stump protected by means of a covering of Bracken or litter, the roots being made safe with dry ashes. Thus treated, they make excellent centres for large groups, after the manner of Cannas and other fine-foliaged plants now used with such good effect in the flower garden.—J. GROOM.

GARDENING WITH COVERED SOIL.

SOME interesting experiments have been made in one of the public gardens in France in what may be termed excessive mulching—that is, covering the soil with some material to prevent evaporation. Ordinary mulching with straw, chips, small stones, and other materials is often used to keep down weeds and preserve moisture, and is largely practised in Strawberry culture. In England tiles were at one time employed for Strawberry beds; but they did not answer well, inasmuch as they afforded a comfortable home for vermin. They were in pairs, with a semicircular piece cut from one side of each; when put together they surrounded the plant completely, the bed being thus closely paved with the exception of circular openings for the plants. We had heard of some experiments in this country with boards similarly arranged. Many years ago we passed a few hours at Key West, Fla., and noticed that the most flourishing of the small flower gardens were wonderfully clean. An examination showed that the whole surface of the gardens or front yards was covered with a layer of mortar or cement of some kind, perhaps 3 in. thick, leaving, of course, sufficient openings around each bush, &c. Here were Roses and other flowering shrubs in great perfection under a tropical sun, while the surface covering was swept as clean as a floor. The French experiments were made with market garden crops—Carrots, Cabbages, Lettuces, &c. Among the articles used to cover the soil was sheet zinc of two kinds, mentioned as white and black; in most cases a largely increased product was obtained from the covered as compared with the uncovered soil, in some instances more than double. In seeking a cheaper covering material than zinc, boards were tried with fair success, but the cheapest of all, it is thought, will be parchment paper. Many are doubtless aware that when unsized paper is dipped for a few seconds in oil

of vitriol of the proper strength, and then soaked in water to remove the acid, the paper is changed in appearance and texture; it becomes tough, water-proof, and greatly resembles parchment. Old newspapers thus "parchmentised" will, therefore, probably prove to be the cheapest material with which to cover the soil. The advantages of covering are: 1st—greater rapidity of growth. 2—Lessening of the enormous cost of watering. 3—Avoidance of hard work in weeding, and finally double the crops from uncovered soil. While we do not expect gardeners to at once cover their soil with parchment paper, this matter may offer some useful suggestions.—*American Agriculturist*.

NOTES FROM HEATHERBANK.

No matter at what season of the year we visit Mr. G. F. Wilson's two gardens at Weybridge Heath—the one on the hill, the other in the valley—we invariably find much to interest us, so rich are they in hardy plants of all descriptions, and particularly those of a herbaceous character. These seem to make the gardens in question their home, and need but little attention, for if they fail on the hill they are generally at home in the valley. Both gardens just now are highly attractive, the chief feature being

THE LILIES.—Three massive clumps of *L. tigrinum* in the upper garden have come up unusually strong, thus indicating that last season was a favourable one for the growth and ripening of the bulbs. The other hardier Lilies, such as *L. auratum*, *monadelphum*, the Martagon, Californian, and European types, are likewise breaking strongly, and do not appear to have suffered from the violent winds which have lately dealt out such havoc in the case of other things. We have never seen the occupants of Mr. Wilson's Lily houses wearing such a uniformly healthy appearance as now, particularly the speciosums, the collection of which, consisting mainly of huge specimens in pots, occupies the principal part of a spacious house. These have thick stems some 4 ft. to 5 ft. high, clothed with healthy ample foliage, which must evidently precede a grand array of bloom later in the summer. Mr. Wilson is no doubt quite right in giving *L. speciosum* and its varieties the protection of an unheated glass house, for do what one may, this class of Lily can never attain real perfection in the open, at least near London and in corresponding climates. Another Lily that is afforded the kindly shelter of a glass house is *L. longiflorum*, which is to all appearances thankful for it. As might be expected, the Lily houses are crowded with Lilies of all descriptions that have not reached the adult stage, both those from seeds and those from bulb scales, two methods of propagation carried out largely by Mr. Wilson. As soon as the young plants are capable of taking care of themselves they are transferred to the wild garden, some few miles away at Wisley, there to take their chance with crowds of hardy exotics that are undergoing naturalisation in the shady wood and on the sunny hillside. The only Lily in flower just now is the charming little *L. tenuifolium*, a kind with brilliant vermilion turban-shaped blossoms, borne on elegant stems 1 ft. or more high. Everyone who likes Lilies should possess this beautiful harbinger of the Lily season, and fortunately it is not one of the difficult-to-manage class.

HARDY FLOWERS, as we before remarked, are everywhere to be seen thickly carpeting the ground, so thickly indeed that there is but little chance for weeds to exist, a plan which should be often followed than it is, for when properly carried out it constitutes one of the greatest charms of a garden—very different from the ordinary stamp of mixed border. The main thing



Biota orientalis aurea.

mosa are also very bright and effective when the young growth is first formed, but as it attains maturity it becomes greener. The golden *R. tetragona* aurea is distinct from any of the others and very pretty. This list might be largely extended, but sufficient have been named to show the great variety that exists among this class of plants to choose from; still, the *Thuopsis* must not be omitted, especially the dwarf form of *T. dolabrata* (latevirens), and the distinct bronzy *Cryptomeria elegans nana*, both of which succeed well in pots. ALPHA.

Berberis Darwini.—This Derberis is showing itself in fine form this year, bushes of it everywhere being all aglow with blossoms. It is so accommodating in habit that it may be grown almost anywhere; if wanted for a house or building it may be trained to a wall and made to cover a large space, or it may be grown as a bush in the foreground of shrubs, or on rockwork or banks, positions in which the gracefully drooping branches are shown off to the greatest advantage. Not only is this *Berberis* an object of great beauty when in flower, but it is exceedingly ornamental afterwards when it becomes full of berries, the rich blue-black of which makes them very conspicuous. The leaves, too, are of a very pretty green, bright and polished looking, and the plant altogether has a cheerful aspect. Being difficult to transplant, as most *Barberies* are, it would be well if nurserymen kept it in pots, as then it could be had at any time with a certainty that when planted it would grow. The season in which I have always been most successful in moving evergreen *Barberies* is April, or immediately they have

required is a sufficient knowledge of the plants, so as to place them at the outset where they may be able to hold their own. In some parts of the garden here they are allowed to have pretty much their own way, a capital plan, for throughout the year these plants are never without bloom. Now there are colonies of Forget-me-nots (particularly of *Myosotis dissitiflora*), Columbines, Wallflowers, Narcissi, spreading masses of *Lithospermum prostratum*, *Arenaria grandiflora* (a beautiful plant with large white blossoms), Candytufts, Violets, hundreds of seedling Primroses and Polyanthes in large beds, associated with the lovely hues of the border or alpine Auriculas, which form a special attraction. The Virginian Cowslip (*Pulmonaria virginica*) attains

will only dwell on those of exceptional interest. These include the following:—

OURSLA COCCINEA, a pretty little Chilean plant with brilliant scarlet flowers, but seldom seen on an ordinary rockwork. It requires either to be grown in a pot so as to become pot-bound, or planted hard against the foot of a wall, so that its roots may creep along the face of it. When in flower it is one of the most distinct as well as one of the prettiest of hardy plants.

HYACINTHUS AMETHYSTINUS is one of the best hardy bulbous plants that we know of. Though somewhat resembling the common Wood Hyacinth, it is more elegant, and the tiny bell-like blossoms are of the brightest azurean blue. A fine plant of it here forms a strikingly pretty

flowering Larkspur, its early flowering is a great gain.

SAXIFRAGA Peltata.—The huge specimen of this, which in summer bears foliage rivalling that of the Rhubarb, is just now attractive, owing to the numerous spikes of blossom which it is bearing. These are from 1½ ft. to 2 ft. high, as thick as a man's thumb, and terminated by a broad flat cluster of pinkish flowers, which appear before the leaves are produced.

DAPHNE CNEORUM.—We often hear complaints of this exquisite little shrub being a rather miffy subject to deal with, but here is a fine bush of it growing on the rockwork taking its chance with other things, and now covered with its pretty rosy-pink sweet-scented blooms.



A new Bornean plant—*Leea amabilis*. (One quarter natural size)

true development in semi-shady spots in rich, moist, peaty soil, and so does the large white Wood Lily (*Trillium grandiflorum*), than which we have rarely seen finer specimens. It also luxuriates best in a partially shaded spot, not in heavy shade, but such as that afforded by a thin row of tall Hazels. Besides the common Columbine (*Aquilegia vulgaris*) the pretty *A. canadensis*, with its scarlet drooping blossoms is also prominent, and a singular fact is that one of the plants of this species, a very large one, has occupied the same place for some years, and has not been supplanted by its stronger growing relative, *A. vulgaris*, from out of a thicket of which it raises its graceful growth. Hardy plants in flower here being so numerous, we

object that cannot fail to attract anyone. There is a white variety of it, though rare, in cultivation.

DELPHINIUM TRICORNE.—The more we see of this new dwarf perennial Larkspur, the more are we inclined to consider it one of the most valuable additions to hardy plants that have been made of late years. Never have we seen it so fine as in Mr. Wilson's garden, where it is growing on low rockwork, having been planted some two or three years since. At the present time it has flower-spikes 1 ft. or more high, each carrying a dense cluster of blossoms of a rich deep violet-purple colour. It is apparently a plant of simple culture, and quite hardy. Though it cannot be compared with the stately growth of the later

It is, as is often said, a plant that should be in every garden.

Among other plants that struck us as being exceptionally fine were *Corydalis nobilis*, which grows admirably here in the valley garden; *Xerophyllum asphodeloides*, which will, we think, be finer than it has hitherto been here; *Mertensia paniculata*, not so fine as *virginica*, but still a good plant; *Saxifraga Wallacei*, one of the best of all the mossy Saxifrages; also *S. muscoides* purpurea, an exquisite little gem, and an indispensable plant in the rock garden; *Tiarella cordifolia*, an elegant plant with white feathery flower-spikes, admirable for cutting; and *Primula japonica*, of which some grand specimens are already in bloom.

LEEA AMABILIS.

THIS forms a most valuable addition to garden plants and one as regards foliage unsurpassed in beauty by any other we know of. Its leaves, as will be seen, are compound, each leaf consisting of from four to six sharply pointed, opposite leaflets and a terminal one; they are fully 6 in. long and from $1\frac{1}{2}$ in. to 2 in. broad, with prominent midribs and numerous oblique symmetrical veins branching from them. When first expanded, the leaflets are bright crimson tinged with a rich shade of brown and marked with a pale rose band along the midrib; when mature they are of a deep bronzy green shaded with brown, relieved by a broad silvery white central band. The novelty of the colouration of this plant and its striking aspect cannot fail to recommend it to cultivators of ornamental stove plants, to whom it may perhaps be appropriately described as resembling a shrubby *Cissus* discoloured. It has been exhibited this year for the first time, and has invariably been awarded first-class certificates wherever it has been shown. It is one of the new plants offered for the first time by Messrs. J. Veitch & Sons, Chelsea, who introduced it from Northern Borneo through their collector, Mr. Curtis.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

A LARGE table bouquet is of full-sized shoots of Solomon's Seal and *Dielytra spectabilis*, with pink herbaceous Peonies; another of tall white Florentine Iris, rising from the handsome leaves of *Veratrum*, with bold groups of double *Poet's Daffodil* cut their full length of about 22 in. A large jar of palest green pottery holds *Moutan* Peonies, pale and deep pink; and a wide brass bowl is full of Lilacs. A sunny wall gives a bunch of the large, loose, coppery flowers of *Fortune's Yellow Rose* and of *Safrano*, which are arranged with the abundant young red-coloured foliage of the latter. A broad blue china bowl is brilliant with orange, yellow, and white—*Alpine Wallflower*, *Cheranthus Marshalli*, *Welsh Poppy*, and double *Saxifrage* (*S. granulata*). A large bunch of *Lily of the Valley*, with plenty of leaves, is held in an antique engraved glass. *Clematis montana* is thickly grouped in a shallow bowl with red-tinted young foliage of *Berberis*. A low white china bowl of basket pattern holds pink *China Roses* and an early pale yellow *Honeysuckle*; a bunch of *Weigela rosea* is also in white china. There are still gatherings from the greenhouse of *Rubus roseifolius*, a most useful plant that has been continuously in flower since Christmas. The dinner-table is dressed with *Azalea mollis*, deep orange and rosy salmon-coloured, in baskets of cream-coloured Leeds ware. A state dress of ivory white satin and lace is harmoniously completed by bouquets of the lovely rosy pink *Daphne Cneorum*, the ornaments being of pearl and diamond.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

LILY OF THE VALLEY can now be had in abundance. Large handfuls of it may often be seen bunched up together and placed in a vase with but a small proportion of foliage. A better way in which to arrange these lovely flowers is to first place a goodly amount of their own foliage in any vase sufficiently deep to avoid shortening the spikes, which should then be inserted one at a time till sufficient have been arranged to allow each individual spike to show itself off to the best advantage, and somewhat after the manner in which they are seen growing. I have found a few growths of *Myosotis dissitiflora* to harmonise exceedingly well with them, being likewise very durable where the receptacle holds a fair amount

of water. For a somewhat bold arrangement, and one adapted for a sideboard or entrance hall, select the graceful arching spikes of *Solomon's Seal*; a vase with a black or dark ground would suit well for these. Sprays of *Laburnum* are very pretty used along with *Wistaria sinensis*. The former also looks well associated with the foliage of the purple Beech. Trusses of the yellow *Ghent Azaleas* are now very useful; we employ them in many ways. In specimen glasses with a few pieces of *Forget-me-not* mixed with them they are most attractive. A leaf or two from the young growths of *Berberis Aquifolium* with its fine bronzy colour is a valuable addition. *Violas* and *Pansies* can be turned to good use by way of variety in the arrangements. These look well in a flat dish with Moss to keep them fresh; a few pieces of either ground Ivy or of any other creeper may be interspersed amongst them. *Rhodanthe*, pink and white, can now be had, and they make excellent subjects for cornucopias of centre-pieces for the dinner-table when used in conjunction with any of the ornamental Grasses either wild or cultivated. For the bases of centre-pieces just now the bold showy flowers of the *Clematis*, both white, pale blue, and lavender, and also deeper shades, are all excellent adjuncts where variety in arrangement is indispensable. These flowers may also be recommended for their durability. Tea-scented *Roses* are at all times appreciated for their lively tints; when arranged by themselves, I think they display their beauty to the best advantage. When carelessly grouped together in a trumpet vase (using their own foliage), nothing looks better. Pieces of *Clerodendron Balfouri* in flower have a pretty effect when used in conjunction with a few spikes of *Begonia nitida odorata*. A stray blossom of *Datura Knighti* (the double form) we recently cut and placed in the entrance hall, where its perfume was not found to be too powerful, as might have been the case if placed in a close room.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Ferns (*Giant Fennel*).—For planting by the side of water and in other moist positions there are few hardy herbaceous perennials equal to the *Giant Fennels*; certainly none excel them in elegance of foliage and habit of growth. The varieties *communis* and *gigantea* are those most generally cultivated, and indeed they are the only kinds worthy of a place in ornamental gardening. They are of the easiest culture; the seeds should be sown in February in heat, and as soon as germination has taken place the young plants should be grown on in an intermediate house and planted out in permanent positions in May. The soil should be a stiff, deep loam, and if not naturally moist, abundance of water should be given during the summer time. The first season the plants will not grow more than 3 ft. or 4 ft. in height, but in the course of a year or two they will reach 8 ft. or even 10 ft. We have a large bed of the variety *gigantea* and *Boconia cordata*, another hardy herbaceous perennial, planted alternately, and the effect is all that can be desired, the tall flower-spikes of the *Boconia* being shown off to the best advantage by the giant Fern-like foliage of the *Ferns*.

Roses, climbers, and annuals.—*Roses* being so forward, owing to the mild winter, the wind storm of the 29th ult. terribly injured the tender foliage and shoots, an injury which it is to be feared will render the plants an easy prey to the attacks of fly and mildew. It will, therefore, be advisable to keep a strict out-look for the appearance of both of these pests in order that remedial measures may be at once taken. To destroy fly, there is nothing better than clear water, applied with force through a syringe or garden engine; for mildew use soap-suds, and whilst the plants are still wet dust them over with sulphur. Should leaf-rolling maggots be troublesome, the only sure cure is to pick them off and burn the leaves in which they are ensconced. Keep all that have been recently planted thickly mulched, and in dry weather water freely. Brier stocks should be

kept clear of all shoots except those that are to be budded, and root suckers should be destroyed as soon as perceived. The foregoing remarks are equally applicable to *Roses* on walls and verandahs, with this addition, that where there are projecting eaves that prevent rain reaching or washing the plants, artificial watering will be more frequently requisite. *Clematises* and other climbers now need weekly attention as to direction of growth and training; sticks or strings should be placed to such annual climbers as *Canary Creepers*, *Nasturtiums*, *Convolvulus*, *Scarlet Runners*, and *Sweet Peas* before there is any danger of the growth getting matted together. Seeds of all these may still be sown, and also of the quickest growing dwarf annuals, such as *Virginian Stocks*, *Candytufts*, *Clarkias*, *Limnanthes*, and *Nemophilas*, and finish planting out *Asters*, *Stocks*, *Phlox Drummondii*, *Zinnias*, *Indian Pinks*, *French* and *African Marigolds*, ornamental Grasses, and *Everlastings*.

General work.—At the present time there is no lack of this, and good generalship as to the direction of work is necessary if the varied operations are to be done at the right time; with this object, let each day's work be arranged the preceding evening, and be done in the day, even though the usual hours of work be exceeded, for only by such persistency can we hope to keep pace with the daily increasing labours of this season of the year. Just now bedding out is the principal operation—work that whilst it lasts too often monopolises the entire labour of a garden, but for which there is no occasion if an early beginning be made, say early in May, and the hardy kinds be planted first, finishing up the tender sorts early in June. In this way time may intermittently be spared for hoeing and weeding shrubberies, picking off dead flowers and seed vessels from *Rhododendrons* and *Azaleas*, tying up perennials, clipping verges, weeding walks, mowing, and any other jobs that tend to the perfection of neatness.

INDOOR PLANTS.

T. BAINES, SOUTHAUGH.

Pentas.—Free-flowering, quick-growing plants like this well deserve cultivation. *P. carnea* strikes freely in the usual way in warmth if kept moist, close, and shaded. If cuttings are put in now they will make good flowering plants by the end of the summer. Old examples well cut back now, if given moderate pot room, will push up a quantity of shoots that will flower in a short time, as every shoot produces bloom. It succeeds in any kind of tolerably good soil that is not too heavy.

Panicum variegatum.—Wherever there is a stove or intermediate house, a good stock of this prettily variegated drooping plant should be grown; it looks well in hanging pots or baskets, and is never seen to better advantage than when forming an edging, so as to hang down in front of the side stages. A sufficient quantity of cuttings should be put in from time to time, as old plants get too large for some purposes.

Reidia glaucescens and **Grevillea robusta**.—These are two of the most elegant of all plants for table decoration or similar uses. The *Reidia* is somewhat tender, and on that account best adapted for summer use; it strikes freely from cuttings, provided they are taken off with a heel when about 3 in. or 4 in. in length. They are best obtained by cutting off the heads of such old plants as have got bare at bottom; thus treated, they will quickly push out young growths if kept in a warm house; as the shoots get large enough to strike and are taken off, the old stems will go on breaking out afresh, thus affording a considerable stock before the end of the season. The *Grevilleas*, of which the variety just mentioned is the best for use in this way, will strike from cuttings procured and treated like those of the last named plant, but they are nevertheless best grown from seed, as in that way they make more elegant plants in a comparatively short time.

Their leaves are not so persistent as those of some things; on the contrary, they fall off at the bottom and leave the base of the plants bare; on this account the stock should be kept up by successional sowings. Seeds put in now will soon germinate, and if well supplied with warmth and moisture will grow apace.

Daturas.—Old plants of these cultivated in pots and wintered out of the reach of frost will have now broken into growth. If they are in want of more root-room they must be shifted at once into larger pots or tubs, giving them good, rich loam. Where there is a large conservatory to keep furnished, several of these showy plants may with advantage be grown so as to give a succession of bloom, which can easily be obtained by starting them at intervals. Those that commenced growth and which were potted earlier will now have got hold of the new soil, and should have plenty of air and light to prevent the shoots from becoming drawn, a condition in which they do not flower freely.

Mignonette.—In large greenhouses and conservatories large examples of this plant are often preferable to small ones, and in order to have them of the required size and with the requisite amount of healthy foliage, they will require proportionate pot room, but with this plant I have not found it well to give too large shifts. It is better to move them frequently. Mignonette likes fairly rich soil, keeping the plants stopped as they require it; a good place in a light house or pit and plenty of air to insure stout leaves that will maintain a healthy condition are indispensable. Plants with indifferent foliage are unsightly however full of flower they may be. A little more seed may be sown now, and if well attended to the produce will yet attain a useful size. The new white variety is very beautiful; the flowers are individually very large and so double that it produces little, if any seed; it has therefore to be propagated by cuttings. For pot culture, however, this is no serious obstacle, and the plant has such a fine appearance that it deserves all the attention needful to insure success.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Orchard houses.—The weather at the present time is highly favourable to the colouring and ripening of Peaches and Nectarines in the early forced houses, and under the judicious use of water and liberal ventilation the flavour also should be good. When the fruit begins to soften for ripening, syringing may be discontinued and the supply of water to the roots considerably reduced, but at no time must watering be discontinued, as a flagging state of the trees will soon destroy the sprightly flavour if it does not lead to the premature ripening and dropping of the fruit. As safeguards, trees which have rooted into beds or borders should not be disturbed, as feeders of this kind always send up a steady supply; and the pots after being well watered should be heavily mulched to keep in moisture. When the time arrives for gathering the fruit, remove every Peach before it is ripe enough to fall from the tree, place them in shallow boxes well bedded with soft, dry Moss, and convey them to a dry, airy fruit room for use when in condition.

In the late or general house fruit of all kinds is now swelling away freely, and good syringing twice a day will be indispensable. Always use soft water if it can be obtained, and see that every part of the tree is well bathed, otherwise aphids and spider will soon attack the Peaches, Plums, and Cherries. Pay daily attention to pinching and thinning where strong upright growths are robbing the lower parts of the trees. Give an abundance of water to the roots, and add stimulants where feeding is considered necessary. As the fruit gets more advanced and the stoning process begins to draw upon the trees, frequent additions of the richest material to the mulching and constant feeding with warm, diluted liquid may be indulged in without fear of forcing a gross

habit, as is sometimes the case when this treatment follows immediately after the flowering period. Thin out the fruit of Peaches, Nectarines, Pears, and Cherries where too thickly set, always bearing in mind that light crops of fine fruit give the greatest amount of satisfaction to producer and consumer, and pay best when sent into the market. If Strawberries still occupy the shelves, an effort should be made to keep them quite clear of the trees, and in a position favourable to copious feeding and good syringing without fear of injury to the permanent occupants of the house.

Figs.—When all the fruit has been gathered off the early pot trees, the foliage must be regularly and copiously syringed to ensure the destruction of any red spider which may have gained a footing. Old mulching may be removed, as far as practicable, without disturbing the surface roots, and a fresh supply of rich manure may take its place, to be washed in at future waterings. With the exception of the daily ventilation, which will be more liberal, the treatment of bringing on the second crop will be precisely the same as that recommended for the first. As there is now little danger of fairly well-managed trees casting their fruit, a liberal hand must be directed to the thinning of the second crop, otherwise the Figs will be small, and they will ripen in a glut instead of giving a succession of full-sized fruit up to the end of the season. Trees permanently planted in succession houses will now take an abundance of water through the syringe, and good feeding with generous liquid will be imperative. Go over the trees once a week and thin out all superfluous growths. Keep all leaders neatly tied in, and guard against shutting out solar heat and light by allowing the foliage to become crowded. Many people make a rule of pinching the point out of every shoot to induce a fruitful habit; but this end can be much easier attained by annual lifting and replanting at the fall of the leaf by thinning out all shoots which have reached the extremity of the trellis at the winter pruning, and by laying in at full length the young growths of the current year. When treated in this way prolific kinds become perpetual bearers, as they are constantly growing and producing a young Fig at the base of every leaf.

Hardy fruit.—With the exception of Peaches and Nectarines, which are unusually clean and good, fruit trees of all kinds are terribly infested with grub—no uncommon occurrence after a mild and comparatively frostless winter. In many districts these troublesome pests have been swept away by devastating storms, but where they have escaped, timely and continuous hand picking, supplemented by frequent washings with the engine, must be followed up until they are brought into subjection. By this time the disbanding of Peaches and Apricots will have been brought to a close, and hoeing in and the stopping of gross shoots will require attention. It is a common mistake to suppose that trees trained upon the full extension principle are very liable to rush into a too robust habit of growth, but such is not the case, at least in my experience, and it rarely happens that we find a single watery shoot in a tree which requires pinching to maintain the proper balance of the sap. If the broad copings have not been removed, frequent syringing will be necessary and highly beneficial to the fruit and foliage, and copious waterings on well-drained borders will be found a powerful aid in keeping the trees clean and healthy. Pears on south and west walls, also the most forward pyramids, will now be sufficiently advanced in growth to require attention to stopping and thinning. In years gone by it was the practice to allow a free and unrestricted growth of breastwood until the middle of July, but now we find the continuous pinching of the strongest shoots invigorates the weak ones and leads to the formation of blossom-bearing spurs, whereas the July pruning produces a violent check at a time when the half-swelled fruit is in the greatest need of encouragement. The early thinning of the fruit on Pear trees should not be entered upon rashly, as many promising fruits

fall off after the inexperienced have set them down as safe; but heavily cropped trees may be relieved by the removal of all badly formed and inferior fruits, which cannot grow into value if allowed to remain.

SOCIETIES.

ROYAL BOTANIC SOCIETY.

MAY 17.

ONE of the finest early summer shows which this society has ever had took place on Wednesday last. The capacious tent, with its picturesquely undulating banks and mounds, teemed with floral productions of the highest excellence, the only fault, if fault it be, being that the arrangement has settled into a somewhat stereotyped affair, which, to habitual visitors, is monotonous, and which would be obviated by a little variation now and then in the permanent design. Every part of the tent wore a bright appearance. In the central portion were large and beautiful groups of miscellaneous plants from the Holloway and Forest Hill Nurseries, including numerous new and interesting objects. These took up one side, the other being occupied by a superb group of Roses, both in pots and in a cut state, from the Waltham Cross Nursery, while from Coombe Wood Messrs. Veitch contributed a large and most effective group of the elegant Japanese Maples, the delicate tones of which (the deep reds and varied shades of green) had a charming appearance in contrast with the brilliant coloured Rhododendrons and Azaleas, which formed a margin to the group. Around the tent inside, the mounds were clothed with huge stove and greenhouse plants and Azaleas, each group being toned down by an alternating group of fine-foliated plants. The competitive classes were, as usual, well represented, and throughout the exhibits were of exceptional excellence.

CLIMATIS were magnificent, and formed one of the principal features in the show. Of these there were two collections, one from Messrs. Jackman, Woking, the other from Mr. R. Smith, Worcester. The Woking collection was extremely fine, consisting of about two dozen plants, all superbly flowered, trained on balloon-shaped trellises, and measuring some 4 ft. or 5 ft. high. The varieties were principally of the languinous and florid types, the most prominent being *Alba magna*, a grand variety, with pure white flowers over 9 in. across and of good substance; *Blue Gem*, pale blue, very fine; *Duke of Norfolk*, deep mauve; *Purpurea elegans*, an extremely fine deep blue kind; *Lady Caroline Neville*, pale mauve, of which there was a huge specimen shown; *Henry*, creamy white; *Excelsior*, deep mauve; *Mad. Van Houtte*, white suffused with blue; *Princess of Wales*, bluish mauve, very pretty; *Robert Hambury*, bluish lilac; *Sensation*, pale mauve; and *William Kennett*, a deep lavender and with the petals beautifully crested. These are all of the languinous type, and represent some of the finest yet raised. Among the double or florid type were *Countess of Lovelace*, bluish mauve; *Duchess of Edinburgh*, pure white; and *Lucie Lemoine*, white—three charming varieties. Mrs. George Jackman, one of the patens type, was also beautifully shown; the large satiny white flowers, borne in profusion, rendering the plant very conspicuous. The collection from Worcester, numbering two or three dozen plants, though much smaller than those from Woking, made, nevertheless, a fine display, the most noteworthy varieties among them being *Lawsoniana*, with very large, deep mauve flowers; *Grand Duchess*, languinous candida, *Verschaffelt*, *Marie LeFebvre*, *Lord Neville*, and *hybrida perfecta*, a new variety with flowers of a delicate lavender shade, produced very freely even on small plants.

ROSES formed a grand feature, especially nine plants from the Cheshunt Nurseries, which were marvels of high-class culture, being all of large dimensions and superbly flowered; rarely, indeed, have Roses been shown so finely. A specimen of

Charles Lawson, some 6 ft. or 7 ft. across, was an exhibition in itself, as were also plants of Anna Alexieff and Madame de St. Joseph; the smaller specimens consisted of Cheshunt Hybrid, Dr. Andry, Beauty of Waltham, Marquise de Castellane, Perfection de Monplaisir, Madame Victor Verdier, and Victor Verdier, all of which were uniformly fine. This was the only noteworthy collection in the class for nine plants, but a very remarkable collection of twenty plants in 8-in. pots was shown by Mr. Turner, of Slough, all of which, though mere pigmies compared with the monsters from Cheshunt, were models of skilful culture, being superbly flowered and furnished with such healthy, vigorous foliage. A plant of Madame Lombard, with its beautifully formed flowers of a peculiar reddish tinge, was admired by everybody, as were also Madame de St. Joseph and other Tea varieties. The collection was thoroughly representative of a selection of the finest Roses. A similar collection from the Cheshunt Nursery was likewise a prominent feature in the show.

ORCHIDS.—The mound set apart for these beautiful plants was well filled, though individually the plants were not so fine as at previous summer exhibitions, one or two celebrated collections being unrepresented. There were four collections of twelve plants, all excellent in quality. The first, from a new exhibitor, Mr. Coningsby, gardener to Mr. Dorman, Sydenham, was exceptionally fine. It consisted of *Odontoglossum vexillarium*, a huge mass of six plants in a bushel pot, and a fine dark and uniformly-coloured variety. This potful was an exhibition itself, being fully 4 ft. through and a very healthy mass. *Dendrobium Falconeri* on a Tree Fern stem showed this superb Orchid off to perfection, the gracefully pendent stems being laden with large and highly coloured flowers. A mass of plants of *Cattleya Mendelli* made a fine display, one bulb bearing four very large flowers representing a remarkably fine variety, and a small plant of the white *Cattleya Skinneri* bore five flowers. The others in the collection were *Oncidium concolor* (a fine mass), *Masdevallia Harryana*, M. Veitchi, *Odontoglossum citreolum*, O. Alexandræ, several plants all of good form; O. Halli leucoglossum, and *Cypripedium barbatum* giganteum. The next best dozen, from Loxford Hall, consisted of *bona fide* specimen plants, i.e., not "bedded out." The most prominent plants were *Cypripedium villosum* and *Dendrobium nobile*, large and fine, and smaller examples of *Cattleya Mossie*, *Dendrobium Wardianum*, *Cypripedium caudatum*, *Calanthe veratrifolia*, and three small, but superbly flowered, plants of *Odontoglossum Roezlii* and its white variety. The third collection, from Mr. Cobb, contained *Vanda Denisoniana*, with two spikes; *V. cœrulescens* Boxall, a potful of plants bearing five spikes, large masses fastened to a block of *Oncidium concolor*, *Saccolabium ampullaceum*, a mass of about a dozen plants of *Odontoglossum vexillarium*, and a good *Oncidium Marshallianum*. The fourth collection, from Mrs. Torr's garden, included an excellent *Saccolabium retusum* with five spikes, two of which were fully expanded; *Masdevallia ignea*, with about thirty flowers; *Oncidium ampliatum majus*, and *Cypripedium Stonei*. In the nurserymen's class for twelve plants, Mr. James, of the Castle Nursery, Lower Norwood, showed the finest dozen, which included fine masses of *Cypripedium niveum*, *Oncidium concolor*, *Cattleya Mendelli* (one variety of which was exceptionally fine), *Masdevallia Veitchi* and *Lindeni*, *Odontoglossum citreolum*, O. crispum, *Oncidium Marshalli*, *Cypripedium barbatum* (a grand mass), *Dendrobium Paxtoni*, and D. nobile. The other collection, from the Kingston Nursery, had also some well flowered specimens, especially of *Saccolabium ampullaceum* and *retusum*.

STOVE AND GREENHOUSE PLANTS were of uniformly high quality, especially those shown by amateurs. One of the finest collections of ten plants that it is possible to see now-a-days came from Mr. Greswolde Williams, Henwick Grange, Worcester, whose gardener, Mr. Tudgey,

is certainly to the fore in the culture of this class. The collection included huge specimens of *Azalea magnifica*, a superb white kind, and *Criterion*, delicate pink; equally large plants of *Erica Cavendishi*, grandly flowered; *E. ventricosa* magnifica and the variety *coccinea minor*; also well-flowered plants of *Clerodendron Balfourii*, *Franciscan confertiflora*, *Pimelea decussata*, *Dracophyllum gracile*, and an admirable specimen of the Flamingo Flower (*Anthurium Scherzerianum*). Other collection of ten plants from amateurs included one from Mr. Spode's gardener, Mr. Chapman, whose *Hedera tulipifera*, *Erica Cavendishi*, *Acrophylum venosum*, and *Ixora coccinea* were marvels of cultural skill, being large and densely flowered. *Hedera tulipifera*, *Aphelexis macrantha*, *Bougainvillea glabra* were the most noteworthy plants in the third collection shown by Mr. Rann. The best six for amateurs came from Hawkesyard Park, Rugeley, among which were grand examples of *Erica Cavendishi*, *Anthurium Scherzerianum*, and well-flowered plants of *Aphelexis grandiflora* and *Ixora Dickiana*. A plant of the new *Anthurium Andreanum* with four fine spathes was shown by Mr. Tudgey in the next best collection; also a moderate sized plant of Ward's variety of *A. Scherzerianum* with a dozen large spathes. This collection, which also included *Erica Cavendishi ventricosa* magnifica, *Aphelexis macrantha purpurea*, *Clerodendron Balfourii*, any very fine, was scarcely, if at all, inferior to that placed first, and certainly contained more novelty. In the third collection, from Garbrand Hall, were huge plants of *Azalea Iveryana*, *Bougainvillea glabra*, *Hedera tulipifera*, *Clerodendron Balfourii*, and *Anthurium Scherzerianum*. The nurserymen showed stove and greenhouse plants well, especially Mr. J. Cypher, of Cheltenham, who was first with twelve and second with six plants. In the former he had some grand *Azaleas*, *Magnificent* and *Holfordiana* being the best. *Erica Cavendishi*, *Aphelexis macrantha purpurea*, Ward's variety of *Anthurium Scherzerianum*, *Dracophyllum gracile*, *Stephanotis floribunda*, all of high quality, were also included in this dozen of fine plants. Among the half-dozen were excellent specimens of *Erica depressa* (the finest in the show), *Roi de Doubles Azalea* (a very fine plant), and *Anthurium Scherzerianum*, likewise fine. The best in the second collection of twelve plants from the Kingston Nursery were *Rhododendron Dalhousianum*, *Pimelea mirabilis*, and *Euphorbia* *Eclipse*; the others were of average quality. In the collection of six plants from the Norbury Nursery, Streatham, were grand examples of *Erica Cavendishi*, *Statice profusa*, *Anthurium Scherzerianum* (with about forty spathes), *Hedera tulipifera*, *Ixora Prince of Orange*, and the semi-double *Azalea Souvenir du Prince Albert*. *Anthurium Scherzerianum* was likewise shown from the same nursery in the collection of twelve plants from nurserymen. The Heaths and Gloxinias called for no special comment.

FINE-FOLIAGE PLANTS, including Ferns, were represented by some excellent examples of high cultivation, particularly the exhibits from amateurs. In the class of six plants, Mr. Rann brought from Handcross Park his huge specimens, which far surpassed any others. They consisted of *Latania borbonica*, *Areca sapida*, *Cycas revoluta*, a monster *Croton interruptum*, well coloured, a rather smaller plant of *C. Andreanum*, and a fresh and large plant of *Gleichenia Mendelli*. In the next best six was a grand plant of *Croton Andreanum* from Mr. Tudgey, who had also fine examples of those two very elegant Palms, *Cocos Weddelliana* and *Geonoma gracilis*. Of the three hardy Palms, *Chamaerops humilis*, *Fortunei*, and the excoela, fine healthy plants were shown in the third collection, which came from Lady Goldsmith's garden, Regent's Park; and another collection, shown by Mr. Butler, was also creditable, especially considering that they were grown in almost the heart of London. Amongst nurserymen, the competition in fine-foliated plants was not strong, there being but three exhibitors. The best six, from Mr. Cypher, included a fine example of *Croton magnificum*

and C. Sunset, a handsome variety not often seen; Palms and Cycads, and a fine plant of *Gleichenia Mendelli*. In the next collection, from the Castle Nursery, Lower Norwood, was a grand plant of *Stevensonia grandifolia*, *Macraetia Denisoni*, *Pandanus Veitchi*, *Anthurium crystallinum*, and *Alcaecia macrorhiza variegata*; indeed, this collection was but little inferior to the other. Messrs. Hoopers showed the other collection, which likewise represented some large and excellent specimens. The Ferns were neither numerous nor very remarkable. Only one collection was shown in the nurserymen's class, viz., that from Mr. James, who had small, but healthy, fresh-looking plants. Three collections of six plants from amateurs were shown, the best by Mr. Douglas, from Loxford Hall, who had grand plants of *Adiantum concinnum letum* and *A. cuneatum*, *Dicksonia antarctica* and *fibrosa*, and *Gleichenia Splendula*. In the other collections *Adiantum farleyense* and *Davallia Mooreana* were conspicuous, and another exhibitor showed a remarkable half dozen plants of *Adiantum cuneatum*, all about a yard through, and perfect specimens in every way.

AZALEAS formed a brilliant feature, and, as usual, were of huge dimensions and densely furnished with flowers. The best six from amateurs came from Mrs. Torr's garden, and were superb examples, perfect cones of bloom some 5 ft. high. The varieties were *Iveryana*, white; *Criterium*, salmon-pink; *Model*, deep rose; *Mad. Verveane*, rose-pink; *Reine des Pays Bas*, pink and white; *Concinnia*, reddish purple; all excellent sorts. The next best, from Lady Goldsmith's garden, Regent's Park, were fine, especially plants of Duke of Devonshire, *Stanleyana*, and *Punctata*, which were in every way excellent. A strikingly fine group of six plants in 12-in. pots was shown by Mr. Ratty. Amongst these *Stella*, *Duc de Nassau*, *Criterium*, and *Juliana* stood out prominently. The same exhibitor also showed a fine group of a dozen plants in the open class. Mr. Turner, of Slough, had a grand collection in 12-in. pots; among these the finest were *Mons. Cuvelier*, *Stella*, *Roi Leopold*, *Ferdinand Kegeljan*, *Duc de Nassau*, *Duchesse de Nassau*, *Mdlle. Marie Van Houtte*, *Reine des Fleurs*, and *Estandard de Flandes*, all of which rank amongst the cream of Indian Azaleas. They were remarkable for their large size and the fine quality of the flowers, especially having regard to the comparatively small size of the pots in which they were growing.

PHLEARGONUMS were not so fine as they usually are at the first summer shows. Mr. Turner, who generally shows well, had to give place to Mr. Cypher, who brought from Cheltenham half a dozen large plants, chiefly of the decorative or market type, such as *Duchess of Edinburgh*, *Miss Bradshaw*, *Triomphe de St. Mandé*, *Kingston Beauty*, *Mdme. Thibaut*, *Rob Roy*, *Edward Perkins*, which, though fine in their way, do not possess the refined appearance as the true show varieties, which were wont to be shown so finely from Slough. Mr. Turner's collection, though small, was superior in many respects to that which was placed first, being neater and brighter in colour. The amateurs' class likewise was not particularly good. Mr. Little's gardener (Mr. Wiggins) being, as usual, to the fore with a fine collection of six plants, including *Snowflake*, *Miss Till*, a very bright and pleasing variety; *Sultana*, *Digby Grand*, *Miss Bradshaw*, and *Duchess of Bedford*. There were but few remarkable plants in the other two collections.

HARDY PLANTS were not numerous, but better shown than usual. There was a class for twelve plants, but only six kinds were to be shown, a singular restriction productive of monotony. Moreover, many exhibitors do not possess two creditable plants of six kinds, and are thus debarred from showing. In the best collection from Loxford Hall were some fine plants of *Saxifraga Wallacei*, *Myosotis ripicola*, and *Phlox setacea*, *Ameria cephalotus*, *Saxifraga rotundifolia*, and *Veronica gentianoides*. Two other collections were shown—one from Messrs. Hooper, the other from Messrs. Carter. In the collection from the former over

couple of plants of the charming little *Eritrichium nanum*, one of the most alpine of plants, also of *Arenaria balearica*, *Armeria alpina coccinea*, *Gentiana verna* was shown beautifully by Messrs. Carter, who likewise showed a large collection of hardy plants, numbering some 150 plants, thereby indicating that the new awakening to the beauties of alpine and hardy perennial plants is stimulating nurserymen to extend their culture. This collection included many a bright little plant, for the most part well grown, though some, such as the *Trollius*, were very poor. If the regulations in the schedule of the society were re-adjusted in favour of the exhibitors, we feel sure that alpine and hardy plants would form an interesting if not a showy part of these grand summer exhibitions.

MISCELLANEOUS EXHIBITS included an extensive display of Pansies from Mr. Hooper, of Bath, who grows these beautiful flowers to perfection, and exhibits them in London finer than anyone. The collection consisted of some hundreds of blooms and were altogether superb. Another exhibitor from Bath (Mr. Meddicks) also had a large show of Pansies, and a fine exhibition of the old florist's type of Tulip, so seldom shown now-days in the south, though very beautiful. An extensive show of cut blooms of *Pyrethrums*, both single and double, from Messrs. Kelway, were greatly admired for the rich colours and elegance. From the same nursery also came a fine group of Tree *Fæonies* in variety, which were also much admired.

NEW PLANTS.—The following new plants were shown besides those awarded certificates mentioned before: From Messrs. Veitch—*Acer septemlobum*, elegans, purpurea, *ampelopsisfolium*, *linearilobum*, *atropurpureum*, *cratægifolium*. From Mr. B. S. Williams—*Cattleya Mossie Rothschildiana*, *Odontoglossum angustatum*, *Calanthe densa*, *Diefenbachia majestica*, *Kentia costata*, *Sageonia irregularis*, *Asparagus plumosus nanus*, *racemosus*, *Leea amabilis*, *Miltonia spectabilis*, *roseum*, and *radicans*, *Begonia Diadema*, *Acer polymorphum versicolor*, *Mossangea musica*, *Odontoglossum cuspidatum* *xanthoglossum*, *Angulosa Dodgsoni*, *Anthurium Dickie*. Messrs. Paul & Son, Cheshunt—*Ulmus Dampieri Wredei*. Mr. B. S. Williams—*Amaryllis Edith*, *Azalea Miss Buist*. Messrs. Laing & Co.—*Caladium ornatum*, *cardinale*, *Ludemannii*, *Souvenir de M. de Bernard*, *Begonia Marchioness of Bute*, *Palagonium Mrs. Miller*. From Messrs. Carter & Co.—*Iberis Tenoreana*, *Antennaria tomentosa*, *candida*, and *Mimulus Ruby*. From Mr. Richard Smith—*Clematis Princess Beatrice*. From Mr. T. Wiggins—*Palagonium Fire King*, *Decorative*, and *Goliath*. From Messrs. Wm. Paul & Son, Waltham Cross—*Roses Miss Helen Paul*, *Tatiana Oneguine*, *Mdme. Jules Grey*, *Ernest Prince*, *Ulrich Brunner*, *Mdme. Marie Garnier*. From Mr. Meddicks, Bath—*Pansy James Cadby*, *Countess of Derby*, *Old Granville*, *Princess of Wales*. From Mr. Hooper, Bath—*Pansy A. J. Way*, *Miss Franklyn*, *Lady Woodhouse*, *Lady Rosebery*, *Paragon*, *Zulu King*, *Mrs. Siddons*. From Mr. Odell, Gould's Green, Hillingdon—*Pink Empress*. From Mr. Eason, Gloxinia—*Mrs. B. Noakes*.

BOTANICAL CERTIFICATES of merit were awarded to—

PELLEA DONIANA.—A handsome Fern, with fronds from 6 in. to 12 in. long, erect, simply pinnate, and of thick texture. It will probably prove to be a valuable warm greenhouse plant. Mr. B. S. Williams.

PRATIANGULATA.—A neat little New Zealand alpine plant, much resembling a white flowered form of *Lobelia Erinus*, except that it is dwarfer and more prostrate. The plant shown, measuring about 1 ft. across, was a mass of white bloom. It is perfectly hardy, and an excellent rock garden plant. Messrs. Veitch.

PESCATORIA KLABOCHORUM.—A handsome Orchid, having large blossoms of waxy texture, pure white with sepals tipped with violet-purple, as is also the singularly formed labellum. Mr. B. S. Williams.

TRICHOPIA BACKHOUSIANA.—An Orchid similar in growth and flower to *T. suavis*, but the blossoms are of firmer substance and pure white. It is a handsome plant, and very distinct. Mr. Dorman, Sydenham.

ACER JAPONICUM AUREUM.—A variety of Japanese Maple having broad palmate leaves of a uniform pale golden hue which is said to be constant; it contrasts prettily with the green kinds. Messrs. Veitch.

CROTON BARON SCHRÖDER.—A handsome and distinct variety, having oblong leaves of a bright golden yellow broadly edged with a rich deep green, and with a crimson midrib, an effective plant, and a good addition to the already long list of *Crotons*. Mr. B. S. Williams.

ADIANTUM DOLABRIFORME.—Similar to *A. lunulatum*, but said to be evergreen. It is certainly an elegant Maiden-hair, having long, gracefully, pendent fronds and crescent-shaped pinna. A valuable acquisition to greenhouse Ferns. Mr. B. S. Williams.

ACER POLYMORPHUM vars. *DECOMPOSITUM*, *LINEARILOBUM*, and *RIBESIFOLIUM*, three handsome varieties of this extremely variable Japanese Maple. The first has deeply cut foliage, the next leaflets very narrow, while *ribesifolium* has leaves much resembling those of some of the species of *Ribes*. All from Messrs. Veitch.

KENTIA COSTATA.—An elegant Palm with long gracefully arching pinnate leaves, which make it highly ornamental. Mr. B. S. Williams.

CORYLUS AVELLANA AUREA.—A variety of the common Hazel, having leaves of a bright golden yellow hue; being very distinct, it will form a fine contrast to the purple-leaved variety. Messrs. Paul & Son, Cheshunt.

AGAPANTHUS UMBELLATUS AUREUS.—A variety of African Lily, in which the leaves are marked longitudinally with stripes of yellow. Mr. B. S. Williams.

ACER CRATÉGIFOLIUM VEITCHI.—A Japanese Maple, which differs from the type in having larger and more entire leaves of a pleasing green hue. Messrs. Veitch.

PESCATORIA LEHMANNI.—The same species as that exhibited at South Kensington at the last meeting, and there certificated. It is a very handsome Orchid. M. Vauvert, Ghent, Belgium.

PHALANGIUM ELEGANTISSIMUM.—A plant resembling some species of *Anthericum*, having long, narrow, reflexed foliage, handsomely striped with yellow and green. A fine addition to greenhouse plants. Mr. B. S. Williams.

SCOLOPENDRIUM KELWAYI DENSUM.—The singular variety shown last week at South Kensington. Its growth is dwarf and tufted, like curled-leaved Parsley, and altogether it is a distinct and interesting hardy Fern. Messrs. Kelway & Son.

FLORICULTURAL CERTIFICATES were awarded to—

CALADIUM ALBO-LUTEUM.—A large-growing variety, having leaves of a pale greenish yellow, distinct from any other we know. Also to *C. IBI* *IBIS*, a pretty variety with foliage beautifully coloured and marked. Both from Messrs. Laing & Co.

RESEDA ODORATA PROLIFERA ALBA.—A very fine Mignonette, having large, dense spikes of white flowers, distinct from any other kind. Shown by the raiser, Mr. Balchin, Hassock's Gate, and also by Mr. B. S. Williams.

CALCEOLARIA CLOTH OF GOLD.—An extremely fine variety with huge trusses of flowers, the pouches of which measure from 2 in. to 3 in. across, and clear golden yellow. The habit of growth is good and the plant very floriferous. Mr. Rapley, Bedford Hill House, Balham.

ROSE QUEEN OF QUEENS.—A beautiful Hybrid Perpetual, having flowers of large size, full, and of a pleasing rose-pink colour. It will probably prove to be a first-rate variety both for the garden and the exhibition table. Messrs. Wm. Paul, Waltham Cross.

BEGONIA WM. BEALBY.—A double-flowered variety, having large and very full blossoms of a rich cherry-crimson colour. B. ARTHUR G. SOAMES and MARQUIS OF BUTE, extremely fine single-

flowered tuberous varieties, both with large flowers almost circular in form and firm in texture; the former is a very deep sanguineous crimson, the other brighter in tint. All from Messrs. Laing & Co., Forest Hill.

PANSIES GENERAL GARFIELD AND ECLIPSE.—Two fine sorts, the former a bedding variety with large handsome flowers of an intensely rich deep purple, and very free in growth and flower; the other a show variety with very large blossoms of a peculiar reddish-brown colour. Both from Mr. H. Hooper, Bath.

A full list of awards will be found in our advertising columns.

THE ASPARAGUS COMPETITION.

ALL entries for this should be made to Mr. A. F. Barron, Royal Horticultural Gardens, South Kensington, not later than May 19. Exhibits received up to 8 o'clock on the morning of Tuesday, May 23.

The following are the prizes offered for the competition of the present year, which will take place in the Royal Horticultural Gardens at South Kensington on Tuesday, May 23:—

PRIZES FOR GARDENERS IN PRIVATE PLACES, AMATEURS, AND OTHERS NOT GROWERS FOR MARKET.

For the best bundle of *Asparagus grown by the exhibitor*: 1st prize, £4; 2nd, £2 10s.; 3rd, £1 10s.; 4th, £1. The bundle of *Asparagus* to be consisted of eighty heads. Prizes will not be given where, in the opinion of the judges, there is no merit. The *Asparagus* must be free of earth, and the bundles will be opened by the judges in all cases where they think it well to do so. No imperfect or "double" heads will count.

For the best fifty heads grown by the exhibitor, £2 10s.; second prize, £1 10s.; third prize, 15s.

For the best twenty-five heads grown by the exhibitor, £1 10s.; 2nd, £1; 3rd, 10s.

PRIZES FOR MARKET GROWERS.—For the market grower who shall exhibit the best three bundles, grown by the exhibitor, each containing one hundred heads, £5 5s. This prize is offered by Sir Henry Thompson. Second prize, £3 3s., offered by Samuel Spalding, Esq.

On Mr. Miller's retirement lately from the management of the gardens at Clumber, a few of his friends and well-wishers met at Worksope and presented him with a purse of gold as a mark of their esteem and respect for him. He has been for some twenty years in that neighbourhood, and all regret his leaving it, but it is hoped he may soon meet with something to suit him.

Names of plants.—*G. Potts*.—*Saxifraga Schmidtii* appears to be but a large form of *S. crassifolia* or cordifolia, one that is known in some collections as *purpurea*; *S. speciosa* is a variety of *S. ligulata*; *S. purpurascens* is correct; *S. hirsutifolia* is *S. ciliata*; *S. ciliata* minor we do not recognise, but probably is a form of *S. crassifolia*.—*G. N.*—*Cypripedium barbatum*, 1, apparently *Platyloma rotundifolia*; 2, send a frond with spores on the back.—*G. B.*—1 is a species of *Epidendrum*, but cannot name without better material; 2, *E. macrochilum album*.—*W. W.*—*Claytonia perfoliata*.—*Constant Reader*.—1, *Acacia armata*; 2, *Cytisus racemosus*; we cannot name the others from such scraps.—*Botanist*.—Please send better specimens.—*E. de B. M.*—*Edwardsia grandiflora* (New Zealand).—*J. C.*—*Leucodendron argenteum*.—*J. Cousins*.—Next week. *W. Watson*.—1, *Geranium phœum*; 2, *Centranthus ruber*.

COMMUNICATIONS RECEIVED.

Mr. T. W. H. G. L. & B. A. G. J. C. C. L. W. G. J. P. M. R. G. G. T. J. S. W. W. G. S. W. W. D. T. F. G. S. W. J. C. P. E. de Ve. H. L. W. R. H. S. A. D. W. D. W. J. M. K. C. B. H. F. R. P. M. E. H. J. H. E. H. E. T. M. C. B. R. H. S. W. E. G. T. B. J. E. F. J. R. J. T. G. J. P. W. N. C. W. D. W. P. & Son. J. C. T. J. G. J. W. W. B. A. & H. K. & Co. H. L. Amy. A. B. E. D. H. P. J. S. & Sons. D. A. K. P. G. W. W. W. B. F. J. C. J. C. & C. J. C. L. H. W. B. E. M. Bell. W. C. A. S. R. T. W. J. M. C. W. L. A. D. W. L. B. E. H. J. S. J. P. C. & Co. W. W. R. G. J. C. C. B. & Sons. G. J. W. J. M. A. D. W. A. M. A. H. A. M. J. C. K. & Co. Max L. F. P. D. T. F. W. B. C. M. O. W. H. F. R. G. T. F. R. G. S. J. D. T. F. G. J. S. & Sons. Delta. L. W. S. T. H. J. C. T. F. G. H. A. P. J. S.

No. 549. SATURDAY, MAY 27, 1882. Vol. XXI.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

ENJOYABLE WINTER GARDENS.

SEVERAL articles have lately appeared in THE GARDEN on the subject of conservatories of a more enjoyable kind than those one usually sees, and it is to be hoped that a good deal more will yet be said about it. Certainly the ordinary conservatory with its weekly-arranged potted plants, is enjoyable only in a limited degree. One is grateful for any flowering plants in winter, but there is a sense of discomfort in knowing that they are just brought in for a few days to be looked at and must then go away to make room for others; and for a day or two after each arrangement there is an uneasy look about the plants, till they have arranged themselves according to the light and settled into their new positions. One also feels that there must be costly plant houses and pits in the background to serve as feeders, and that the frequent removal and replacing takes much time and labour. Then it is not a picturesque thing, perhaps not even a pretty one, if the colours, as they often do, come badly together; and no one can expect the average gardener, however well he may grow plants, to be a man of taste, or to understand the grouping of colours and foliage. This seems to be proved by the strong family likeness in the ordinary run of conservatories, where may be seen over and over again the same common-place effect of a quantity of flowers spottedly arranged. Many people are, no doubt, content to have their flowers like this, but those who have most sympathy with plants require their companionship in some more enduring form. The ordinary conservatory only invites them to look and pass on, hardly to linger, certainly not to stay. It has not the powerful attraction possessed by any perfectly sympathetic piece of gardening. The true winter garden, as I understand it, would have shrubs and plants chosen with the utmost care and deliberation, and resolutely planted where they are to remain. They must be beautiful in foliage, winter-blooming, and as many as possible fragrant; rareness or novelty of introduction should give no claim to admission without these qualities. They should be planted on varied and very slightly raised mounds with an irregular path, and there should be at least one bower-like mass rather away from glare of light where would be a seat; not a seat of porcelain or rustic cast-iron just to perch upon, but one of stone, marble, or wood, well designed and reposeful. My ideal seat is such as one comes upon in a Roman garden, bowered with Olive or Ilex, with, perhaps, clumps of Acanthus at the returns, and Violets and Cyclamens growing out of the shattered pavement underfoot. Everything should be for quiet rest and sweetness; nothing aggressive. For my own part I should even banish all spiky growths, Aloes, Palms, Phormium, and the like, as less restful to the eye, and should avoid any kind of straining after a tropical effect. I am supposing a moderate greenhouse temperature.

The choice of plants would be simply of those most beautiful and enjoyable, whether rare or common. The large masses would be of such bushes as Lemon, and, perhaps, others of the Citron tribe; but Lemons are, on the whole, the best; then Loquats, Myrtles, Bays, Laurustinus (common and black), Rhododendrons of the East Indian section, such as jasminiflorum, and Veitch's splendid hybrids, Azaleas, American and

Chinese, Daphne indica and Mezereon, and Andromeda floribunda. Then bold groups of foliage of Acanthus and Aspidistra, and of other plants, such as Solomon's Seal, and Schizostylis coccinea, with undergrowths of small Ferns and Mosses. What a pleasant thing to see, fringing larger plants, and running into little half-hidden bays, would be a widespread growth of one of the smaller kinds of Maiden-hair, such as the common kind so abundant in the Mediterranean district, with groups of the tall fragrant Narcissi and Roman Hyacinths shooting up somewhere in the more backward part of the Ferncarpet, and another wide stretch of Selaginella carpeting Lily of the Valley. Then a mass of Parma Violets or Primula denticulata, or Sieboldi, and perhaps a bordering group of bolder type like the African Cyclamen with its finely-marked leaves 7 in. wide. The path should be of some smooth, quiet-coloured asphalt or concrete; no crunching gravel or aggressive eyetorture of encaustic tiles, and the living carpet would be encouraged to grow unevenly over the edges. Any wall-space could be clothed with Camellias or Ficus repens; pillars and rafters with some of the winter-blooming Clematisses, indivisa lobata and cirrhosa, with Lapagerias and Luculia gratissima, Jasminum grandiflorum, and Solanum jasminoides; and the lower parts of the pillars, where the taller climbers would be bare, with Smilax, Myrsiphyllum, and Ruscus androgynus for foliage, or sweet Geraniums trained as pillars for sweetness.

Surely such a winter garden is reasonable and would be the most enjoyable, and yet would take the minimum of labour, and next to no costly behind-the-scenes arrangements to keep it going; or, if it be thought that it would not give show enough of flowers, there might be one or two spaces of Cocoa fibre for plunging plants, such as a group of Hyacinths or Chinese Primroses, carpeted with small Ferns or Mosses to suit the rest. In such a house none of the usual ugliness would be seen, stages and paved walks would not exist, and the necessary pipes would either be hidden by shrubs above-ground or sunk in under-ground areas also behind the shrubs. The house would be so constructed that the top lights could be slid right down and taken away in summer to give the plants the benefit of sun, rain, and fresh air. The painting of the woodwork is of some importance; pure white lead is generally unobjectionable, but is a little too conspicuous, and all direct colour should be avoided. I have seen conservatories painted a cold pale blue picked out with white, with disastrous effect to the plants, the eye being always caught by the cold bright paint. I am of opinion that the safest colour to recommend is a cool stone colour, something like weathered Portland stone; a house painter would describe it as a white lead with black, and a very little raw umber as stainers, not dark enough to be dull-looking, and yet well away from white.

G. J.

SHADY AND SUNNY GRASS WALKS.

In our climate when the seasons are fine, it is well to have some shady walks near the house on sunny days. So, too, it is delightful in taking a walk around the grounds on warm May days to do so on a sunny Grass walk, just a strip of the turf mown without any further preparation, going here and there through the shrubbery and by groups of Lilacs and fragrant bushes. Even where a bold and well-planned walk goes 'around' the garden or pleasure ground, it is easy and desirable to have this. Should occasion arise through absence or otherwise not to mow the strip, it might be let alone with the other lawn Grass. In these days when people begin to see the advantage of put-

ting some pretty free hardy flowers to grow in the Grass such walks would be all the more delightful. Not less precious is the shady walk, which is of course cool in hot weather, and which enables us to grow Ferns and shade-loving plants, offering a complete relief to the open sunny walks just alluded to. Examples of both, very good of their kind, are in two neighbours' gardens, those of Professor Owen and Mr. Chadwick, in which we had the pleasure of a pleasant stroll in Lilac time.

A GARDEN OF ANEMONES.

A PRETTY garden near the sea, sloping southwards; it is sunny and warm sometimes, but not always so, as the Hill of Howth—breezy Howth—is often relentlessly wind-swept. Yet flowers luxuriate there, for the climate is a genial one when the tired winds sleep. When Bluebells ring out a thousand welcomes to the mossy woods, and Daisies spread themselves over the lawn like a lace veil, an embroidery of pearls on a carpet of living green, then is this hillside garden fair to see. All is genial and lovely in the first flush of spring. Iris buds and latest Daffodils shine amongst the Bluebells beside the drive, and there are little mysteries—early leaves and peeping buds of a hundred kinds—near the trees where chequered sunlight plays. Young leaves shimmer overhead, and on the crest of the sloping hill above the little wood Gorse bushes throw their wealth of golden blossoms right up against the deep blue of an April sky. All is now peace, as silver wavelets ripple playfully around a wreck in the bay; and yet the wintry storm which swept the argosy ashore tore leaves of Hollies and other evergreens to shreds, leaving the naked twigs sighing and shivering in the bitter blast. On a soft spring day like this, however, one may forget the storm fiend, since even the tenderest earth star may rear its little head and look up frankly at the sun. Anemones, fine and full of fluctuating colour, dance and sparkle in the breeze, for this, albeit a lady's pleasure, a garden of flowers of many kinds, is essentially a garden of Anemones in all their subtle variety and beauty. Apennina, sulphurea, sylvestris, alpina, japonica, Pulsatilla—all are here, with others not less beautiful. Indeed, a garden of Windflowers seems most appropriate, just such an one as seems fitted best to nestle on the breast of such a breezy hill. How comes it that such a classical, such a beautiful flower as the Anemone is so seldom grown even in good gardens? That the species are both variable and numerous, and that they naturally girdle the year with flowers, must not be forgotten. A bed of A. coronaria raised from good seed is like a kaleidoscope, so varied are the colours and shades of the flowers which stand up boldly from the fresh Fern-like leaves. In sheltered, sunny spots near the sea they bloom freely from October until May. As it is generally allowed by many of the best judges that "St. Bridgid" grows Anemones in her hillside garden better than anyone else, her mode of culture (an account of which you intimated in a recent issue of THE GARDEN you desired) will doubtless be gladly read by those who wish to grow such showy blossoms for themselves.

"Having saved the seed the preceding May, in March, or in April, I select," says 'St. Bridgid,' "a piece of good ground in a warm situation. A layer of fresh cow droppings is spread over the surface, and dug into the bed to a depth of 5 in. or 6 in. Then on the surface leaf-mould is spread, and mixed with the upper soil to a depth of 2 in., the whole being then raked fine, and so made ready for

sowing. The downy seed is then rubbed gently with moist sand, so as to separate it thoroughly, and then it is sprinkled (sown) over the surface of the bed, but not too thickly. A little fine soil is then shaken over the bed to cover the seeds, but not to bury them. As weeds appear, they should be pulled up while they are yet so small that their removal will not disturb the Anemone seedlings, which are tardy in appearing and slow in their first growth; but by August they should be sending up flower-stems, a few only at first, but increasing every week, until, by the end of October, the bed is well filled with blossoms. During mild winter weather fresh blooms will open, but in early spring, in March and April, they come at their brightest and best."

Much as all of us have admired cut flowers of "St. Bridgid's" Anemones—fine as they undoubtedly are—they give but a poor idea of their general effect as seen at home in her garden. In the first place, the finest of blossoms are not cut; they are for home friends to admire, and are cherished even after their beauty is over for the sake of the precious seed which they produce. No seed is or has for years past been saved except in this thoughtful and careful way; hence it comes that nearly every flower in a bed, or on the sunny fringe of the Vine borders, is perfect in its form and colouring. Nearly all are semi-double, and, as before indicated, their colour is perfectly bewildering in variety, and their beauty indescribable. Tulips and Hyacinths look pallid and tawdry beside them in spring, just as a handful of them made our *Chrysanthemums* look poor, washed out, and flimsy in November of last year.

Lovely as are these seedling Anemones as seen dancing in the cool, fresh air and bright sun of an Irish spring—beautiful as they are undoubtedly in beds and borders—they have yet another use. For vases indoors they are most satisfying and cheerful, and if cut in the bud state, soon after the colour shows in the petals, they endure fresh and bright for at least a fortnight, the stout stalks being recut and fresh water added to the vases occasionally.

As to "St. Bridgid's" garden, it must not be supposed that although essentially a garden of Anemones, it is entirely devoted to them. They strike the highest and brightest note of colour, but there is room and shelter and thoughtful care extended to many another lovely flower. If Anemones betimes make this pleasure "blazing with light," so Violets and Wallflowers breathe perfume there. Large white Christmas Roses, Snowflakes, and many other old favourites grow there in profusion, and one chief charm of the place is the gentle way in which the lawn creeps up into the Gorse, Heather, and Bramble of the breezy hill above. A glimpse of such a garden will teach how one type of flower beauty well and thoughtfully grown is sufficient to give emphasis and interest to even the most beautiful of surroundings, for no home can well be in a prettier place than on the sunny side of Howth Head, where the rocky meadows run down to the bay, and one's eyes are filled with the beauty of sky and hill, and mountain after mountain rising into the ever-changing clouds beyond the strip of opal sea. But then it is an old garden, and it has been kept with thoughtful carefulness. Newer kinds of Bluebells and finer Anemones are lovingly planted beside the Bluebells and white Anemones which naturally grew wild there. The true idea of the wild garden has been grasped and held precious; a few treasures of Alps and Apennines have been brought to live with home wildings. Gardening is thought to be not inferior as an art to painting, and so is this hillside pleasure a garden picture fair to see, W.

EDITOR'S TABLE.

CAPE PONDWEED.—The Cape Pondweed is huge, coming from Cornwall. People in Devonshire and Cornwall should take care to have so fragrant and interesting a flower in their ponds and fountain basins, and to grow it well.

WILD QUINCE.—What Mr. Ross calls in another column "the wild Quince" is a handsome large flowered tree that reminds one of the Hawthorn, and is often seen about London. It is *Mespilus grandiflora*, and a very hardy and handsome tree it always makes.

A NEW WHITE ROCKET.—As the double kinds of *Hesperis* vary, so do the single, though taken less notice of. Mr. J. Wood sends from Kirkstall a pure white single Rocket, with dense-set, small flowers, like those of a large Iberis, in close, but handsome heads. It is worth increasing.

ORCHIS MASCUA FROM HIGHCLEERE.—Scented like Black Currant leaves, a bunch of the flowers of this from Highcleere served to show that while people there pay such successful attention to the brilliant shrubs of the New World hardy in our country, they are not oblivious of the charms of our modest little Orchids which fleck the cool lawns of that famous tree garden.

HOLLIES IN BLOSSOM.—I never saw the Hollies so well flowered as now. I send you a few sprigs, which, however, are past their best. These are in no way selected; on the contrary, the whole tree is similarly furnished.—J. Wood, *Kirkstall*. [The fragrance of the densely-flowered shoots is remarkable. There is a good deal of interest as regards the blooming of various kinds of Holly. The flowers are pretty though they generally escape notice; all the praise is given to the fruit and foliage of this our most precious evergreen.]

CEANOTHUS AZUREUS.—We welcome in "Sanguinea" a correspondent who sends us a few flowers from Truro that look very much as if they had come from Mentone by quick train. Among them is this pretty Californian bush, which cold winters have destroyed in so many places near London. "Its flowers were cut from a standard plant 20 ft. high, and now a perfect mass of blossom. The plant has stood in its present position fully ten years without the least protection, and has flowered freely every spring."

"SANGUINEA" likewise sends us strong shoots of the handsome *Celsia cretica*, which we shall soon figure in THE GARDEN, and which seems emerging out of the obscurity of the Botanic Gardens into some fair degree of appreciation. Its golden buds are very pretty, and of it our correspondent writes: "I enclose some flowers of a very showy *Verbascum*, known here by the name of Moth Mullen; it is a hardy perennial, and grows freely from seeds, which are produced in abundance, and flowers fully nine months out of the twelve."

The most remarkable thing that "Sanguinea" sends us, however, is a great panicle of the flowers of the red *Habrothamnus*—such a panicle as we never saw indoors! Presumably this was grown out-of-doors against a wall, but although he sends notes about other things, he does not say a word about this, and perhaps he will tell us how it does in the genial district whence it comes.

BABIANAS FROM GUERNSEY.—It is well that these islands of ours have small satellites called the Channel Islands—at least for us it is so. We feel it whenever we see a package coming from Mr. C. Smith, of the Caledonian Nursery, Guernsey. This time he sends us some of those strange Babianas which one seldom sees in their beauty in our English gardens. There is a deep rich crimson, a delicate purple and white, and a very fine deep rich purple, one of the choicest purple flowers we have ever seen, if not the finest, as regards the depth and purity of its colour.

ANEMONES INDOORS.—Valuable as are the double scarlet Anemones in the open garden, we did not know how precious they were for the house until those bright blossoms came from Mr. Gilbert, at Bourne. Five or six of them in a small Violet glass placed alone on the chimney-piece have been a little picture. The fine intensity of their colour, and their beautiful form changing hour by hour, was a revelation. The true value of our hardy garden flora will never be felt until every one of the many flowers belonging to it, suitable for the house, have become familiar to us on the breakfast table or in our rooms.

TREE PEONIES.—It is pleasant to see some of those beautiful tree Peonies from Highcleere, where they grow so well, and where, being high up, they escape the frost that destroys them so often in the valley. A large single white one with a crimson base is very lovely; so are the double ones. We should like Mr. Ross to look after the good collections of tree Peonies, such as those that are grown in some Continental gardens. We know nothing finer, and where a garden is found to suit such a noble shrub as the tree Peony, it is good policy to get all the fine varieties which are raised in countries that suit the plant better than this.

AZALEAS.—The Azaleas must be very fine at Highcleere, just as they are in their native woods in America, and so are the many Rhododendrons, including some unnamed seedlings. Mr. Miles has some of Osborn's fine old plants in his garden at Chelsea, and very well they look dotted naturally in the Grass. Each bush shows the fine broken form which belongs naturally to the Azalea, but which the notion that good specimens should be pudding-headed has done so much to conceal. Overcrowding, too, is a common cause of the beauty of the hardy Azalea being somewhat obscured from us. There are too many kinds. It would be well if someone who knows them well would select the boldest forms—free growers and best bloomers.

LILIES OF THE VALLEY.—Seeing this favourite plant very often in a starved and almost flowerless condition in our gardens, and seeing it also of late very strong in the markets when grown by market gardeners around London, we supposed it was some skill in the way of cultivation or selection of the roots that enabled the market growers to show it so well. This may be so to some extent, but we are pleased to see specimens from Aswarby Park gardens which seem even better than the market plants—not in the sense of being larger, but stouter and without all the pipes being open at once—a condition in which the market plants are often seen. Mr. Nisbet says, "A few years ago I commenced to gather some of the strongest crowns from the Lilies growing wild in the plantations here for forcing, and for a number of years threw the roots away after gathering the flowers. Two or three years ago I planted the old crowns

out on a warm south border in a fine, rich, dark brown loam, top-dressing in the autumn with some good rotten manure. Early in March some of the manure is raked off, and this is the whole of the treatment which they receive. I intend trying some mild stimulants in the spring. The flowers grow in the open air and have no protection whatever."

SOLANUM JASMINOIDES.—I send some flowers of this beautiful old creeper which Mr. Fish recently wrote about, giving particular instructions how to grow it. It may interest Mr. Fish and others to know that the flowers sent were taken from a plant that has been growing against a wall for the last three years without the least protection, and which has withstood 17° of frost. We have it growing in three different aspects, viz., on south and east walls, and trailing over a partially shaded rockery. During the past mild winter scarcely a day has passed without more or less flowers appearing on it, and it is at present one sheet of bloom-buds.—**SANGUINEA, Treitissick, Truro.**

VANDA STAVIS.—One is so accustomed to regard Clovenfords as devoted to well-grown Grapes, that one does not consider it as an Orchid garden; but such appears to be the fact, judging by a huge spike of one of the finest forms of this grand Orchid, of which Mr. W. Thomson, jun., says: "We have a large plant with two spikes on it, the one has twenty fully expanded blooms, the other eighteen. The spike I send was from a small plant with only eight leaves; it had two spikes, the one sent, and the other with ten flowers on it. We sold a plant of this lately for fifty guineas. I wonder that Vandas are not more grown than they are. A handsome lot of good Vandas is a noble sight. It is a rare one, too."

ARUM LILIES FROM CORNWALL.—Naturally one expects these to do very well in that county, and very fine they are. "Sanguinea," who sends them from Truro, says, "These flowers were cut from a pond, where they grew beside an embankment which divides the sea from the fresh water of the pond, and forms a pleasant carriage drive of about 200 yards long. On the pond side of this embankment grow great numbers of Arums, Aponogetons, Mimulus, Nuphars, &c. The Arum commences to flower before Easter, except in severe winters, and continues flowering through the greater part of the summer, many hundreds of flowers being frequently open at one time. In severe winters they get cut to the water's edge, but soon recover under mild weather. Aponogetons grow like weeds, and are often finely in flower at Christmas."

LILACS.—We are indebted to Messrs. Veitch for a charming series of varieties of Lilac, which we are glad to see they have taken up as the plants deserve. Having so often spoken of the desirability of paying more attention to such beautiful shrubs, we need only say that these consist of the following kinds, of which the best are forms of the common Lilac, viz., *alba*, *grandiflora*, *purpurea fl.-pl.*, *oblata*, *Aline Magueris*, Charles X., Dr. Lindley, Gloire de Moulins, Triomphe d'Orleans, La Ville de Troyes, Valletiana, and Le Géant des Batailles. Along with these also came *Syringa Emodi* and its variegated variety, *S. Josikaea*, and persica and its white variety. Our country suits these plants so well, and their flowering makes such an epoch in the early summer garden, that we should make it a point of having groups of the best kinds well grown. Anyone who could prolong the season by raising earlier

or later varieties would be conferring a great boon on our gardens. *

PHYLLOCACTUS IMPERATOR.—From Mr. Peacock a handsome bloom of this noble Cactus, which we should be tempted to try to depict were it not that the iridescence and depth of colour of such a flower cannot be shown in a coloured plate with any success. The beautiful passing of the scarlet into crimson, and the violet-stained base of the petals, can only be shown by the form and flesh and blood of the flower itself. A great deal of the effect of such brilliant flowers, too, depends on their form, which is so seldom well drawn or well engraved. We often desire to see the really finer Cacti more commonly grown, but are persuaded that only those that flower well in their season will be welcome to gardeners; the merely curious kinds, curious for their spines and form of the stem, being always about the same in aspect, become monotonous, but those which burst into splendid flower in their season should have charms for many.

'TOM MELLOR, A LANCASHIRE FLORIST.

On Friday afternoon, the 5th inst., a procession of about fifty persons, mostly florists, and wearing flowers in their button-holes, and a few women, relatives, who carried two wreaths of white flowers, interspersed with fine trusses of Auriculas and Polyanthes, followed the remains of Tom Mellor to the graveyard at Christ's Church, Ashton-under-Lyne. After the coffin was lowered into its resting place, flowers were strewn upon it by loving hands, quite covering it over. Such was a florist's funeral. Tom Mellor was respected by everyone, and beloved by many; he may be said to have died amongst his flowers. He had long been ailing, and the physicians wished him to go into the infirmary a fortnight before he died, as they hoped his life might be prolonged by an operation; but Tom declined to follow their advice. He felt sure that he would never leave the infirmary alive if once he entered it. The Auricula show was at hand. He had a lot of pet plants in preparation for it; and amongst these a fine John Simonite, which he hoped might win the premier prize, and he said: "If I die I shall die amongst my flowers; if I live, I mean to be at the show." So he remained at home, visited his garden daily as long as he was able, and gave a trusted friend instructions for the show in case he was unable to attend it himself. The show was on Tuesday, but poor Mellor passed away early on the Monday. His plants were staged and won. Thus passed from us a good old florist, one of a class of which Lancashire has reason to be proud, and of whom there are now but few remaining.

Thomas Mellor was born in Ashton-under-Lyne in 1826. He had a fair education for a working man, being able to read and write well. His taste for flowers was acquired in early life through an acquaintance with S. Fish, a noted Auricula grower, and he was encouraged to begin on his own account by the late W. Chadwick, of Dukinfield, who started him with a lot of Auriculas, amongst which were six or seven good sorts. His garden was on the Moor, about a mile distant from his home, and here he gradually extended his operations, by preparing home-made frames and simple erections for wintering his plants. These florists' gardens are quaint places, some of which would form capital subjects for a painter, and Mellor's was of this class.

Mr. Prescott, of Leigh, advised him never to buy any plants but what he could win with. "Have none of their second-rate stuff, Tom," he used to say. "Have summat that'll win, or it will be o' no use to thee." This advice Mellor followed, and to obtain a good plant he would travel far and wait patiently. One of his favourite Auriculas was Walker's John Simonite, and for this plant he went to the raiser's house at Sheffield many times. Mr. Walker had promised him a plant a long while

before he got it, as this famous Auricula passed through its vicissitudes and was for a time nearly lost by its raiser. At last, however, Tom got his plant, and was so successful in its culture that he was able to raise and sell a good many from it. It was this very Auricula that he was so anxious to show at Manchester, and if he had been in good health it would in all probability have carried off to its owner the premier prize for the second time. He won the premier prize in 1880 with a grand plant of Alexander Meiklejohn. He was so proud of this that he had a beautiful water-coloured drawing of it made by a pattern designer, and it formed the chief ornament of his parlour. He was very successful in raising new varieties. His seedling Lord Salisbury, a very fine maroon self, received a first-class certificate in London in 1880; his white-edged Reliance received a first-class certificate at Manchester the same year, and is one of the very best of its class. He has left behind him a large number of very fine seedlings, which have not yet been shown, but which are of the highest quality, and it was for these he was so anxious to attend the Manchester show.

As a Tulip grower, Mellor was quite as famous. He acquired his early knowledge of Tulips from S. Cock, who started him with a few bulbs, and taught him how to manage them. The late Benjamin Haigh, another leading Tulip grower, lent him a friendly help, and he was thus trained in a good school and soon made his mark. He won his maiden prize in 1866, and thenceforward became a regular and very successful exhibitor.

In Finks and Carnations he also was a noted grower. His maiden prize for Finks was won in 1862, at the great South Lancashire Fink Show, and from that time he became an ardent supporter and exhibitor at all our local shows, and frequently acted as steward. He was a successful raiser of seedling Finks, his Reliance (purple laced) and Bertha (red laced) being especially good. In July, 1855, he was first at Macclesfield, with Black-Eyed Susan (purple laced). Finks were very good that year. He had a special liking for this simple flower, and told many good anecdotes about it. One of his axioms was, that if his Finks were good, others would be good also; and if his were poor, it might be the same with those of his competitors; and he used to illustrate by this practical instances. One year when the shows were coming on he could only find thirteen decent flowers upon the whole of his stock of Finks. He took them home to dress them, and had no sooner begun than he thought the whole lot not worth taking to the show, and so he threw them in the window bottom and left them there lying in full sunlight for about three hours. Happening again to cast his eyes upon them whilst busy at shoe-making, he thought, "Well, if I dunnot tak 'em to th' show, I've miss an out." So he took them up again, and was surprised to find them improved by their rough treatment. He dressed them, and took them to the Rochdale show, where they won three prizes. Next day he took the same despised flowers to the Oldham show, where they won six prizes out of the thirteen.

In Polyanthes also Mellor was a capital judge and grower. He had some excellent seedlings, amongst which his red ground Prince Rupert received a first prize in 1880 at Manchester, and a black ground seedling won in its class at the show this year. Several other seedlings left behind are of sterling quality. The secret of that lost Polyanthus Kingfisher is lost with Mellor, as he alone knew where this famous old flower was to be found, and this knowledge he does not seem to have imparted to any of his friends.

Some curious old hardy plants were amongst his treasures. He had the old double white Rocket, the white variety of the American Cowslip, a lovely grey-blue Fritillaria, a grand lot of Narcissus Horsfield, obtained from old John Horsfield himself, a huge variety of the common Dandelion, which grew nearly 2 ft. high, and which was indeed a glorious flower, and lots of old-fashioned plants of every sort. His garden was a meeting ground for florists in the blooming season, and in it his

happiest hours were spent. It was his last wish that the Rev. F. D. Horner, that true florist and friend of simple florists, should visit him at the last. On hearing of his wish, Mr. Horner left by the very next train from Ripon, but on arriving at Mellor's humble home he found it too late—he had died a few hours previously.

W. BROCKBANK.

NOTES OF THE WEEK.

FRUIT CROPS.—The prospect is very bad. Apples must be very short. Cherries pretty good. Plums settled by wind and vermin. Black Currants not good, the backward sorts good. The Whitesmith Gooseberries got cut early by the cold winds. There is a better prospect of Cobs.

LIST OF ORCHIDS IN FLOWER.—We regret that our space does not permit us to publish several of these, for which we have to thank our correspondents. Besides, mere lists of names have no interest for the majority of our readers, and while we shall be happy to announce the flowering of rare or new species, or to publish illustrations of them, we do not propose to publish long lists of names only.

RARE HARDY PLANTS AT TOTTENHAM.—The following are among the more noteworthy of the plants in flower in the Hale Farm Nursery: *Ixiolirion tataricum*, *Pancratium illyricum*, *Brodiaea gracilis*, *Calochortus cœruleus* var. *Maweanus*, *C. Benthami*, *C. (Cyclobotria) pulchellus*, *Ornithogalum lacteum*, *O. thyrsoides*, *Haberlea rhodopensis*, *Orchis fusca*, *Cypripedium acule*, *C. montanum*, *C. pubescens*, *C. arietinum*, *Sarana kamschatica*, *Orchis spectabilis*, *Mertensia paniculata*, *M. sibirica*, *M. sibirica alba*, *Lilium carniolicum*, *Ir. Tolmieana*, *I. ensata* var. *oxyptela*, *I. longipetala*, *Allium validum*, *Ir. Sisyrinchium*, *Stenanthium occidentale*, *Cistus florulentus*.

THORÆOLUM HERMINE GRASHOFF.—This new double flowered *Nasturtium*, of which a coloured illustration was given in THE GARDEN a short time ago, maintains the high character given it on its introduction, and is, we are pleased to see, becoming widely distributed. It is a free flowerer, and continues to produce its large rosette-like blossoms of a brilliant scarlet-vermilion for several months in succession, a circumstance which makes it highly desirable for a conservatory or for cutting from. A large number of plants of it in the Stanstead Park Nurseries, Forest Hill, are just now finely in flower, and from them one can obtain a good idea of the worth of the plant.

ALPINE PLANTS are so seldom seen in gardens unaccompanied by stones that the idea prevails that the two are inseparable. Now and then, however, one finds these mountain plants growing vigorously even in ordinary garden soil on the level, but, as a rule, they are better when raised a little above the surrounding ground. One of the most successful examples of alpine plant-growing in this way we met with the other day in the pretty hill-top garden at Pyrford Rectory, in Surrey, where Mr. Ridsdale grows some hardy plants extremely well, the position of the garden being well suited to them. It contains a low mound, some 2 ft. high at its highest point and occupying some dozen or so square yards. This has a foundation of ordinary ashes, and on it is a thick layer of common garden soil. This mound is so completely covered with alpine plants that scarcely a particle of bare earth is to be seen, and the plants are in the best of health, spreading widely and flowering profusely. There are *Helianthemum*, *Lithospermum prostratum*,

Sedums, *Saxifrages*, including the beautiful *S. Wallacii*, *Gentians*, and the tiny starry-flowered *Arenaria balearica*, all growing together in the sweetest harmony, forming a most interesting spot in this quiet garden, which abounds with hardy flowers in great variety. Mr. Ridsdale carries out the propagation of hardy plants from seeds very successfully, and by this means he has stocked his garden. He sets aside a part of his kitchen garden as a hardy plant nursery, in which he sows the seeds in lines; he thins the seedlings out as they grow, and afterwards transplants them to the border.

AZALEAS AND RHODODENDRONS here are at present quite grand; indeed, the American garden looks one mass of flowers, and early in the morning the perfume given off by the Azaleas is most agreeable. Some unusually large potenticums growing by the lake will be one mass of flower in the course of a week or so. The gale which we had on April 29 destroyed the foliage of a good many trees, especially that of our fine large Chestnuts; their sides facing the wind are perfectly black, looking as if burned. Pear leaves suffered very much, but I do not think the fruit is at all injured, and we have a plentiful crop of all sorts, especially of stone and bush fruit.—W. C., *The Rookery, Bromley*.

HARDY FLOWERS IN MASSES.—The fine effects produced by grouping hardy plants in large masses may be seen to perfection just now in Battersea Park, where, in the newly-opened part skirting the Victoria Road, Mr. Rogers has clothed a spacious knoll with plants of the perennial Lupine (*Lupinus polyphyllus*), now in full beauty. The grand effect of such a mass of bright purple is very telling at a distance, and near at hand the tall stately spikes have a beautiful appearance. How different this from the dotting system usually seen in mixed borders, where a Lupine or some other plant loses half its beauty by being part and parcel of a heterogeneous mixture, degenerating into confusion. We hope to see Mr. Rogers and others carrying out this system more extensively.

TEA ROSES when seen in such large housefuls as may now be found in the Vineyard Nursery at Forest Hill, recently acquired by Messrs. Laing & Co., are truly charming. Here in a long, narrow, span-roofed house may be seen on either side of the central pathway fine bushes of the lovely *Niphetos*, while overhead, trained to the rafters, are vigorous plants of *Maréchal Niel*, two *Roses* perhaps the most popular that can be grown for furnishing cut flowers. The bushes of *Niphetos* are quite a sight, being profusely laden with buds in all sizes, but few, if any, are allowed to reach the fully expanded state, as the real beauty of this *Rose* lies in the stage just before expansion, and in order to prevent the buds from opening, each is tied with a strip of matting which allows it to swell, but not to open. All the bushes are planted out in a good loamy soil, and the vigour of every plant, and the quantity of flower which they furnish, are indications that such treatment suits them. Buds are cut daily by the hundred, and the demand being always in excess of the supply, a good price is obtained. In this nursery Messrs. Laing carry out Vine culture on a large scale, both as stock plants and for a supply of fruit for market. Some half-dozen houses are filled with young Vines of numerous sorts, now carrying a heavy crop. The much criticised Alnwick Seedling has a fair set of berries this season, and all the others also look well.

PLANTS IN FLOWER AT HIGHCLERE.—I send flowers of a few varieties of *Rhododendron* and *Azalea*, which are all flowering finely here this season. The early varieties of *Rhododendron*, such as *altacelerense* and *Noblea-*

num, were, owing to the mild winter, in bloom early; consequently the *Rhododendron* display will be of long duration this year, and we have not had frost here for the past few weeks to injure the blossoms, a mishap which often occurs in the case of the early flowering varieties. The tree *Pæonies*, too, are making a grand show at present, the mild season having been very favourable for them. They make early growth, which is often destroyed by frost late in spring. I also send a bunch of the wild Quince, which grows here upwards of 30 ft. in height. It is spreading and pendulous in habit, and is at present covered lavishly with white flowers. It is remarkably effective by the side of copper coloured Beeches, and it comes into flower when that fine spring-flowering tree *Pyrus spectabilis* is over. I send, moreover, some wild Orchid flowers, which are plentiful here, and have a charming effect associated with Cowslips and other wild flowers. They are an interesting class of plants, and worth encouraging. They grow abundantly here in damp loamy soil. The *Rhododendron* bloom will continue good for the next week or two.—ROSS.

HERACEOUS CALCÊOLARIAS—now the one great feature in Mr. Brand's garden, at Bedford Hill, Balham—have for some years received special attention from the gardener, Mr. Rapley, who has, we imagine, reached the acme of perfection with these beautiful plants; indeed, it would be difficult to conceive how his strain could be more improved, being characterised by vigorous growth, extreme floriferousness, large size of both truss and flower, and possessing wonderful diversity of colour. Nothing could show more plainly what a careful system of selection can effect when carried out for years than these *Calcæolarias*, the high quality of which is remarkably uniform; in a collection consisting of some 400 or 500 plants, of course there are a few that are exceptionally fine, and these have been singled out for distinctive names, the most noteworthy of which is one called *Cloth of Gold*, than which we have never seen its equal. It is of comparatively dwarf and sturdy growth; the flowers are very large and dense, and the pouches measure fully 2½ in. across. The colour is a rich glowing yellow, so bright as to enable the variety to be singled out at a glance. Some plants of *Cloth of Gold* in 8½ in. pots are very fine. The whole of the collection is in pots ranging from 4½ in. to 8½ in., and forms one long unbroken mass in a narrow lean-to house, having on the back wall some grand specimens of *Camellia* as healthy and as floriferous as can well be imagined. It is when such men as Mr. Rapley take in hand any particular class of plants that one sees them properly cultivated.

Crying for "honours."—The way in which some of our friends are calling out to be honoured is not pleasant from any point of view. Referring to the baronetcy bestowed on Mr. Lawes, a contemporary writes: "We could wish that the State could devise some special order of merit for such recipients as Sir John Lawes, and not put them on a level with political partisans, municipal dignitaries, or successful traders." Special orders of merit are not thought much of by the wise. We thought that even to simple folk the right view would be that doing good work was its own reward! Especially so it should seem to the scientific mind when the point concerns such all-important and noble work as agriculture. It is open to question if the whole tag-rag and bob-tail of honours and distinctions from F.R.H.S. to R.A. and F.R.S. do not do harm to progress. A man is best known by his work. He is at best a poor creature who attaches importance to any other "order of merit."

INDOOR GARDEN.

GLOBBA COCCINEA.

THIS handsome plant, belonging to the Ginger family, is another new introduction from Borneo, and is likely to prove in many respects very valuable. It is free in growth, elegant in habit, showy as regards flower, and possesses the rare quality of being an almost perpetual flowerer. The stems are about as thick as a goose-quill, from 12 in. to 18 in. long, and gracefully arch on all sides, giving the plant an elegant appearance. They are furnished with deep glossy green leaves, and terminate in a dense

STEAM HEATING.

In the monthly report of the New York Horticultural Society occurs the following remarks on this subject by Mr. John Thorpe: Whilst the heating of horticultural structures by means of steam is not a new idea, it has not until within the last few years been successfully applied. This was not because steam was any more difficult to apply than hot water, but from the fact of its not being thoroughly understood. I believe I am right in stating that in the earlier stages of steam heating, high pressure, carrying from 50 lbs. to 75 lbs. of pressure on the steam gauge, was the principle adopted. I well remember when an apprentice that a costly experiment as

the apparatus is put up correctly the condensation is bound to return to the boiler and maintain sufficient water, whether the apparatus is supplied by automatic trap, or works by gravity alone. Messrs. Taber inform me that their apparatus has been worked during the whole winter by an ordinary greenhouse workman. After the steam gauge is set at 2 lbs. or 10 lbs., when that pressure is exceeded the valve opens and the steam escapes. As regards certainty of operation, as sure as you confine water in any vessel and subject it to sufficient fire heat, so sure will you have steam, and if this steam is properly conducted to the desired points, so sure will you have heat, and it becomes as tractable



A new plant from Borneo: *Globba coccinea*.

raceme of flowers, of which the bracts are scarlet and the perianth yellow. The singular structure, peculiar to all plants belonging to this family, is well shown in the engraving, which likewise well represents the habit of growth of the plant. The showy scarlet and yellow blossoms are very effective in a cut state for bouquets, vases, &c., being so uncommon looking. It is of easy culture if grown in a warm and moist stove, and it flowers freely in a small state. It is one of the numerous introductions made by Messrs. J. Veitch & Sons from Borneo through their collector, Mr. Curtis. It has received certificates of the highest degree from both the Royal Horticultural and Botanic Societies.

W. G.

regards steam heating ended in entire failure; this was on the high pressure principle, and, until five years since, I believed, as many do to-day, that steam heating could never be successful. As regards cost, for a small establishment consisting of two or three houses, there would not be any great difference between steam and hot water, but where there is more than 5000 ft. of glass surface there is a great saving in the use of steam, and in establishments of 12,000 ft. of glass surface and over it amounts to more than one-half as compared with the hot-water system. This includes all the conveniences of a return trap, damper, regulator, and safety guards. There is, too, absolute safety in the use of steam, unless from criminal carelessness or gross stupidity. If

and certain of operation as any heating medium can well be. As to any danger from steam pipes setting fire to paper, wood, or any other material coming in contact with them, I may say that unless steam is heated to 400° Fahr., there is not the slightest possibility of their so doing, and to heat steam to 400° requires a pressure of at least 120 lbs., which is an impossibility. The actual heat of pipes carrying from 2 lbs. to 15 lbs. is 125° to 140° only; so it will be seen that there is no more liability of fire than with hot water. The actual difference in working expenses is in comparison with the number of fires used by the hot-water apparatus. Where there are four or more fires this is quite an object, as in this system only one fire or stoke-

hole is necessary, and we all know the more fires the greater the loss from slow combustion and unburnt coal finding its way into the ashes in spite of the best management. In the actual consumption of coal Messrs. Murdoch claim a saving of from 25 to 30 per cent. Dry heat is one of the objections raised against steam, but how the heat can be dry I cannot tell, as when the atmosphere of a greenhouse is heated to a certain temperature, whether by steam, hot water, or flues, the humidity will be precisely the same. Steam pipes radiate heat, not moisture; hot-water pipes and flues do exactly the same in ratio to their temperature; this heat so radiated will absorb a certain amount of moisture according to the degree of temperature of the atmosphere of the house, and not according to the heating medium.

Distribution of heat.—One would expect that the heat from steam pipes would be more violent than that from hot water, and such is the fact, but actual experiments made by myself with hot water, and by Mr. Bochman with steam, show how quickly the heat diffuses and mixes with the atmosphere after leaving the pipes. Mr. Bochman's test is as follows, with the outside temperature at 37° Fahr., no sun, and wind blowing almost a gale, steam gauge recording 3½ lbs. pressure, on account of the high wind, otherwise 2 lbs. of steam would have been sufficient to maintain the following temperature in the houses: 1, house temperature, 76° Fahr.; temperature 2 ft. above two lines of 2-in. steam pipes, 81°; 2, house 58°, temperature 2 ft. above two lines of 2-in. steam pipes, 65°; 3, house 79°, temperature under bench, confined all round by boards for purposes of bottom heat, and 2 ft. above one 3-in. steam pipe, 98°; and in same house 2 ft. away from steam pipe not, so confined, 84°. Test of temperature made by myself in houses heated by hot water—outside temperature 47°; no sun or wind. 1, house, 71°, temperature 1 ft. 6 in. above four lines of 4-in. hot-water pipes, 90°; 2, house temperature, 60°; temperature 14 in. above three lines of 4-in. hot-water pipes, confined by boards for purposes of bottom heat, 102°; actual temperature of hot-water pipe, 128°, the bulb of thermometer being placed immediately on the pipe. At the present there is some diversity of opinion as to the size of pipes best adapted for heating, some preferring 1-in. and others 2-in., or even larger pipes, and I am also informed that even the hot-water pipes already in use can be successfully used by detaching a portion of those where too much radiating surface exists, and making the required steam connections. If this can be accomplished it will undoubtedly make the system all the more popular. It would seem, however, that where an entirely new apparatus is to be erected that 2-in. pipes will be best, as less condensation and friction occur in 2-in. pipes than in pipes of smaller size. It is important, too, that the steam should be alive along the whole circuit—that is, it should pass from the boiler through the pipes and back to the boiler as steam, and not as condensed water. Messrs. Taber inform me that they have in use one 1-in. pipe only, but for all future erections they will use 2-in. pipes, as being cheaper, and to prevent condensation. As to maintaining the same levels of piping in the apparatus as in hot water, there is not the slightest advantage in so doing; in fact, you can take the pipes wherever you please, and on as many levels as required without the slightest detriment, provided the condensation can get back to the lowest point. The greenhouses of Messrs. Reinemanns, of Alleghany City, erected in 1877, are heated by steam; there there is a difference of nearly 40 ft. between the highest and lowest level of pipes, and the pipes of five 100-ft. houses are actually several feet below the water level of the boiler,

and yet every drop of condensation is carried back to the boiler by means of an automatic trap. Whilst on the subject of levels of pipes allow me to offer an idea which will be of benefit in severe weather, and also in very foggy, damp weather, when the atmosphere is almost at a point of saturation, and that is to run along the roof one or more lines of 1-in. pipes, immediately underneath the sash-bars; these pipes could form a support to the roof as purlines. This is no experiment, as I have grown in mid-winter in the midland counties of England by this method—except that the medium was hot water—some of the finest *Pelargoniums* ever seen.

Location of boiler.—It is best that the water line of the boiler shall be below the lowest steam pipes, and for every 26 in. of difference in height the condensation will overcome one pound pressure of steam against the check valve, admitting it back to the boiler. In this case the steam-trap is not required; but it is generally conceded that an automatic trap is a most desirable safety-guard against the possibility of an impediment to the proper return of condensation to the boiler, and by attaching a water supply to the same it insures the requisite amount of water for the boiler at all times. This also disposes of one of those terrible expenses in hot-water apparatus, especially in badly drained districts—a deep stokehole. I may be asked how much water will be required per week for the boiler? To this I may answer that Messrs. Taber have no trap, and so have to supply the water directly to the boiler twice a week, at the rate of about six gallons per day; but where a trap is used and the water supply lies in the vessel, it takes care of itself. A damper is not absolutely necessary, but quite desirable, the principal benefit being its insurance against overheating, if properly adjusted, and the cost would be saved in fuel in two years. After the steam is turned on it does not take long to raise the temperature of the house; from ten to fifteen minutes at the longest the temperature can be raised to the point desired, and this can be relied upon even where the pipes are quite cold; whereas in the case of a hot-water apparatus and cold pipes it would take six or seven times as long. Another advantage is, that after a cold night succeeded by a very sunny morning, you can immediately shut off the valves and maintain a much more equal temperature, where you have not the great bulk of hot water to cool and the sun to contend with at the same time. This would apply more particularly to temperate houses or cool houses. As to cost of wear and tear, that is very light indeed; proprietors of establishments in which steam has been used from three to six seasons declare there has not been a penny outlay. An establishment at or near Pittsburgh was rebuilt and enlarged last summer, the location of pipes changed, and after five winters' use there was not an imperfect joint in the whole lot; the pipes were used again and proved equal to new ones. The wear and tear of boilers will be something, of course, but my conviction is that it will not be any more, or even so much, as hot-water boilers. Many hot-water boilers that I have known depreciated at the rate of 10 percent. per annum, which is extremely high, and it is claimed that a well constructed steam boiler will not depreciate more than 4 per cent. As to boilers, I may say the best is the one that gives the largest amount of steam for the smallest amount of fuel consumed. Boilers of all shapes and patterns are now in use, and work generally satisfactorily; so there is no doubt of those intending to use steam finding suitable boilers. The horse-power required for each 5000 ft. of glass is from four to five, according to the exposure, desired temperature, and construction

of houses. Whilst on the subject of boilers, and to provide against any possible accident, I would propose in large establishments to have two or more boilers set in such a position that the steam from all be conveyed to one steam hose, and distributed through the whole circuit. This would be a saving of fuel, as in the early fall, and again in spring, only one of the boilers need be used. The advantage of this can be appreciated at once, not to mention the actual saving. Hot water so generally in use has done good service, but steam heating, I firmly believe, to be far more satisfactory.

CHINA ASTERS INDOORS.

ASTERS are so well adapted for pot culture, that those who may not have seen a collection of them flowering under glass would probably be surprised at the effect which they produce. The best time to sow the seed, either for pot culture or for flowering in beds in the open air, is during the early part of April; and when required for pot culture, a second sowing may be made fully a month later, with the view of furnishing plants for succession. The seed may be sown in pans or in shallow boxes, which should be placed in a slight hotbed, or in a temperature not under 60° or 65°, where, if the seed is good it will soon germinate. When the young plants are large enough to be handled, they should be pricked into other pans or boxes and kept close, and, if necessary, shaded for a time, or until they have again become established. They should then be gradually hardened off, or inured to the open air, and when large enough, those intended for pots should be planted out in rich light soil, in a frame if convenient, or in a sheltered situation in the open air. They should be planted at a distance of 8 in. or 9 in. from each other, and should be well attended to as regards watering and shading during intense sunshine.

Early in June the young plants will have attained considerable dimensions. In most cases it will be advisable to stop or pinch back the leading shoot, in order to strengthen the lateral ones; the plants may at the same time be carefully lifted, with good balls of earth adhering to them, and they should be firmly potted in pots some 5 in. or 6 in. in diameter. Larger pots will seldom be required. But the plants, being profuse flowerers, are also somewhat gross feeders, and should be potted in rich soil; when the pots are well filled with roots, which will soon be the case, they should have frequent doses of well-diluted liquid manure. The habit of growth of some of the varieties is somewhat dense; it may, therefore, be found necessary to slightly thin out the more weakly shoots, and in some of the sorts which grow rather tall a few stakes may be found necessary; the majority of them, however, being of dwarf growth, will need no supports.

As soon as the blooms begin to expand the plants may be moved into the greenhouse, or even into sitting-room windows, situations in which they will be found to remain in good condition for a considerable length of time, and, being strictly annual plants, they should be thrown away as soon as their beauty has faded. The blooming period may, however, be considerably prolonged by removing the flowers as soon as they begin to decay, unless seed be desired, the saving of which is seldom worth the trouble, as it can be so reasonably obtained from seedsmen. The latter generally have it from Continental growers, who make specialities of certain families of plants, and devote unwearied attention to the obtaining of improved and distinct varieties, as well as to the preservation of the purity of those already obtained. All the sections of the French and German Asters are exceedingly beautiful, and all are suitable for pot culture. The pyramidal or tall varieties form fine specimens in pots. They grow about 2 ft. high, and require to be neatly staked, while the *Victoria* variety (one of the most beautiful) does not exceed in height 10 in. or 1 ft.

and seldom requires that attention. The Dwarf Diamond is new, and an excellent pot variety; the blooms are also very useful for cutting, remaining intact for a long time. The dwarf *Chrysanthemum*-flowered Aster is likewise very suitable for pot culture; while the flowers of the miniature Asters are small, but exceedingly pretty, remaining long in bloom, and the plants are well adapted for pot culture.

Bury St. Edmunds.

PETER GRIEVE.

THE IMPERIAL DAHLIA.

DAHLIA IMPERIALIS is too well known to need any detailed description. Owing to its attaining a large size it is, however, probably grown in but few places, yet from the grandeur of a plant of it when in full blossom, and the fact of its flowering during the autumn months, it should



Bloom of *Dahlia imperialis*.

certainly be grown wherever sufficient space exists for its accommodation. In one of the octagons of the temperate house at Kew that was kept slightly warmer than the main building this Dahlia last autumn was very effective, there being six or eight plants of it in large pots, and they reached a height of from 10 ft. to 15 ft. They seemed just at home there, and flowered beautifully, thereby showing that an intermediate house rather than an ordinary greenhouse is the proper place for it. Various suggestions have been made as to dwarfing this giant among Dahlias, one being to graft it on a tuber of one of the Liliputian varieties, which has been done, and it is said to have been successful to some extent, but in many cases the graft pushed forth roots of its own and then assumed its true character. Such a result would lead one to think that if a shoot were grafted on a young shoot of some dwarf form at a sufficient height to be above ground when potted, it might be possible to accommodate this fine plant in less lofty structures than are at present required for it; at all events, it is worth trying. Its cultural requirements are but few, all that is needed being to keep it cool and moderately dry, but secure from frost during winter. A good way is to allow it to remain in the pot in which it has flowered, and when ready to start shake it out and repot it in good turfy loam mixed moderately with manure; then, when all danger from frost is over, to place it out-of-doors and allow it to remain in the open air till the end of the summer, when, as the nights get cold and the flowers become visible, it should be removed under cover, where it would display its pure white flowers in abundance. To allow of its full development, pots of 18 in. or 20 in. in diameter must be used. For this Dahlia we are indebted to M. Roezl, by whom it was introduced from Mexico in 1862.

H. P.

Wardian cases.—Can anyone tell me of any method for removing sours of soil from a Wardian case without replanting with fresh earth? I replanted the case two years ago, securing good drainage through blocks of charcoal

covered with a layer of Sphagnum Moss. This drainage is still efficient, but the growth of certain fungi and a tendency to rust on the growing fronds of *Trichomanes*, &c., show that something is not right. To replant would check and spoil the *Trichomanes*, which runs half over the case. Would lime do any good?—SIGMA.

Worms in manure.—Can any of your readers instruct me how to rid some well-rotted manure (three-year-old worm hotbeds) of what I believe to be a small worm? These pests are about $\frac{1}{2}$ in. to $\frac{3}{4}$ in. in length, and are nearly white, or the colour of a gentle, and exactly the shape of a worm. I lately potted off some *Mimulus*; some of the plants did not get on so well as the others, and on turning them out of the pots I found about a dozen or more of these little worms around the pot and at the roots.—F. J.

OLD-FASHIONED PLANTS.

It is frequently remarked that the plants which our forefathers delighted to cultivate are yearly becoming scarcer, and that were it not for botanic gardens, many of them would probably become extinct. Hard-wooded plants, such as *Heaths*, *Euphrasies*, *Pimeleas*, *Boronias*, *Eriostemonas*, *Hoveas*, &c., are only seen now-a-days in comparatively few places, and many take it for granted that gardeners cannot now grow them. A few facts may, however, serve to dispel that illusion. In the first place, gardens have multiplied of late years at a rapid rate, and glasshouses have been erected in many places out of all proportion to the labour available to keep them, or their occupants properly in order. On that account, plants that are quickly and easily grown have taken the place of hard-wooded ones. Masses of colour are wanted not only in the flower garden, but in the conservatory, in the drawing-room, and also on the dinner-table, and these and other decorations have compelled the gardener to grow such plants as he



Dahlia imperialis, showing habit of growth.

can trust to produce the desired effect at a given date. He now finds that his novelties or pets (that are more difficult to manage) are but little appreciated, even if he could find time to still cultivate them, so he reluctantly exchanges them for plants that are capable of spending half their period of existence in apartments, or on the hand-barrows, travelling to and fro to the houses. It is for this reason that Palms, Crotons, *Dracenas*, *Pandanuses*, Ferns, &c., have superseded flowering

stove plants, for the former are always ready for use, and stand rough usage better than their flowering associates, for, let the weather be what it may, or the situations they are to occupy ever so draughty or ungenial, at the appointed time they must be there.

Plants are not valued as they used to be for their individual worth so much as for the effect which they collectively produce. Of course there are exceptions, as the high prices given for some rare plants prove, but the general tendency is to use flowers as one would a manufactured article—worth so much per hundred or thousand, according to the effect which they produce. Intrinsic worth is not taken into account in these days, and small indeed is the interest taken in sombre, quiet colours, exquisite perfume, &c. Fashion rules as arbitrarily in regard to flowers as in other matters, and gardeners soon give up the culture of plants that are not appreciated, no matter how highly they may personally value them. The demand for cut flowers has greatly increased; consequently plants that yield a maximum of flower according to time and the space which they occupy are the ones that commend themselves to cultivators, and those that can be hastened or delayed as to their season of flowering have precedence over those that are impatient of fire heat. It is not, therefore, surprising that hard-wooded plants are but poorly represented in even large places, as the resources of most gardens are far more severely tested than formerly. It must not be forgotten, too, that the practice of selling what is called surplus produce is now well high universal, and therefore every bit of space is occupied with crops that are easily convertible into money. Hard-wooded plants are discarded, not because gardeners cannot grow them, but because it would be folly under the circumstances to do so. When grown by specialists they are produced in as great perfection as ever, and it is in some respects well that tastes are varied, otherwise we would have endless monotony and repetition.

J. G.

FLOWERING OF BOUGAINVILLEAS.

I SEND a flowering spray or two of *Bougainvillea speciosa* and *glabra*. I ventured to state in THE GARDEN (p. 394, Vol. XVII.) that *B. speciosa* flowered on the previous year's growth, and *B. glabra* on growth of the current year. My statement was contradicted by "J. S. W." (p. 416 of the same Vol.). I have never had an opportunity of seeing *B. speciosa* in bloom since until this year, and I submit that what I stated is correct. It is true that *B. speciosa* will now and then produce a few stray blooms on the ends of young shoots like *B. glabra*, but the proper way to flower it successfully is to get a sufficient quantity of the previous year's growth well ripened, when almost every eye will produce a bunch of flowers like that sent. I have seen the old *Bougainvillea speciosa* at Swyncombe produce wreaths of bloom from 2 ft. to 3 ft. long quite as good as that on the small branch which I send. One plant of *B. speciosa* I had charge of for three years in a house by itself became very badly infested with mealy bug; as soon as the flowering season was over I pruned it back close to the main shoots, as one would do a Vine, and dressed it with a composition similar to that usually applied to Vines in winter, and the shoots which it made that year bloomed splendidly the season following. Had I done the same thing with *B. glabra* I never should have seen a flower.

W. K.

SHORT NOTES—INDOOR.

The double Bouvardia.—We understand that in increasing this from cuttings it comes double, but if increased from bits of the root, it comes single, which throws a curious light on the origin and nature of some double flowers.

Dracena leaves (Sub.).—We can see no fungus on the leaves sent, and do not know of any fungus that attacks *Dracenas*. The leaves present the appearance of fungus work at first sight, but the damaged places are transparent, and that indicates eating away by larvae, or something of the sort.—F.

FRUIT GARDEN.

FLORIDA ORANGE GROVES.

It is only within the last few years that Orange culture has come to be recognised as productive of very large, in some cases fabulous, profits obtainable from a small outlay, and attended with few risks, where some experience is combined with careful attention. Before the rebellion, extensive natural sour Orange groves, which would be now worth hundreds of pounds were cut down and cleared for cotton plantations. Now young groves are being set out by hopeful settlers all over the State; speculators and others have taken up nearly all available State lands in the most desirable portions of the country, and, in some favoured sections, prices for improved and unimproved places have advanced 500 per cent. within the past eighteen months. A few only of the old settlers look upon the "boom" which is now going on as an ephemeral inflation destined to subside as quickly as it has arisen; but they belong probably to the limited number of old time-croakers who ridiculed those who were first far-seeing enough to turn attention to Orange-growing for profit. They now fall back on the assertion that a few years will make the supply in excess of the demand—a contingency that seems impossible to anyone who has studied the subject, and knows accordingly that at present Florida does not furnish more than one-fourteenth of the annual consumption of Oranges in America, the balance coming from the Mediterranean and West Indies, neither of which can approach Florida in the quality of the fruit. Taking into consideration again the annual increase in population and purchasing power of the United States, together with the fact that there are many large cities where an Orange never finds its way, there can surely be no fear that the Orange business will be overdone. The State can as yet supply only a very limited market, of which New York is the chief. Oranges will net about a halfpenny apiece; a bearing grove, therefore, of ten acres containing, say, 800 trees, bearing each 500 Oranges, will produce a net annual income of not less than £800. It takes not less than five years to bring budded trees to good bearing; seedlings take a few years longer; but when that point is reached there is a rapid annual increase until good trees will bear as many as 4000 Oranges, and the owner can look forward with satisfaction to the certainty of his income swelling every year, while his trees are becoming stronger and hardier and far better able to resist any insidious attacks from cold or insects to which they may be by perchance subjected.

Many young settlers have come to Florida, invested their little all in land for a grove, and under-estimated the expenses of working it and bringing it to bearing; until, just when they should be beginning to reap the fruits of their patience and labours, they find themselves penniless, and forced to sell out and start afresh with the proceeds on a less ambitious scale. Again, since the rebellion there has been, and still is, so little hard cash amongst the southerners, that a considerable proportion of the older and more valuable groves are heavily mortgaged, and their owners indebted in other ways. Money can be safely placed here at from 7 to 15 per cent. per annum. For these reasons there is no lack of bearing groves for sale; and for a man with a little capital at his command it is a better investment, provided the price be right, to buy a grove already bearing, or started, than to set to work clearing land and setting out trees, from which he can get no returns for some years. Bearing groves can now be bought at about £200 per acre, more or less, according to condition and location. A stranger in Florida will, before he has travelled much, have heard more misrepresentations than he had probably heard before in his lifetime. Wherever he goes he will hear the same story. Each section has the richest soil, produces the best Oranges, is the most healthy in the State, and has a railroad coming for a certainty right through

it! Then there are land sharks everywhere, eloquent and plausible, eager to catch the unwary. Unless, therefore, an intending buyer have reliable friends in the State who will give him the benefit of their knowledge and experience, he must be very careful as regards the selection of a site for his grove. Florida is flooded with pamphlets extolling the claims of the different counties and localities to the consideration of settlers; and each agrees, as is usual with publications of that nature, in representing as a veritable Eden the particular section in whose interests it may be written. One point on which they all insist with much emphasis is the salubrity of Florida; but the truth is that this blessing is unfortunately far from being universally extended. In many sections malarial and bilious fevers are very prevalent, especially during the autumn; and although these are rarely of a malignant type, such localities should be avoided by all those who rightly consider health to be of primary importance. With a little care and circumspection there is no difficulty as a rule in finding a healthy site for a house, which can be located on a few acres of Pine land, perhaps a mile or so from the grove, if the settler should prefer to have that on the richer but more sickly "hummock" soil. The winter climate and its efficacy in healing all kinds of pulmonary complaints are too well known to render it necessary to enlarge upon it here. The weather is, with few exceptions, quite perfect throughout the winter months—warm, sunny days, like a cloudless July in England, invariably a pleasant breeze and cool nights. The summer, although very long, averages no extreme heat, which is always tempered by a breeze, either from the Gulf or the Atlantic. In some localities mosquitoes and sandflies are a great pest, but these can be avoided.

The country may be briefly described as consisting of Pine forests, flat or rolling, dotted with lakes large and small, intersected in certain sections with dense and rich tracks of "hummock," heavily timbered with Live and Water Oak, Hickory, Magnolia, Red Bay, Sweet Gum, Cedar, &c., bound together with tangled Vines, and draped with long grey Moss. Marsh lands and Cypress swamps cover also a large acreage. Many of the lakes are very beautiful, and their shores offer charming sites for residences. The sunsets alone are a "joy for ever" to the lover of the beautiful. Then, there are a few prettier sites than a thrifty Orange grove, the dark green leaves forming a fitting background for the juicy fruit, which hangs in golden clusters from every bough. To the man possessed of youth and health, but only moderate means, say £500 to £2000, who likes an outdoor life in a pleasant climate, and does not mind giving up the ball-room for the pruning knife, few parts of the world can offer him so many opportunities for obtaining large returns from a small investment as Florida. With a ready-made grove as a nucleus to start upon, he can go on clearing more land, and setting out trees, until after a few years he will find himself from a small beginning the possessor of a valuable property.—*Field.*

GRAFTING AND ITS EFFECTS.

THE art of grafting is doubtless of very great antiquity, and the date of the discovery of the fact that some plants, under certain circumstances, will not only grow, but will also thrive better, upon the roots of others than upon their own, is, like the name of the discoverer, hidden in obscurity. The influence, however, which the stock exercises upon the scion, and the scion to some extent upon the stock, as regards vigour of growth, productiveness, quality of fruit, &c., opens up a wide field for research, into which I can hardly attempt to enter further than to show how the health and fertility of some plants may be affected by grafting, and how, in order to secure desired results, care should be taken to select suitable stocks for particular varieties. If weakly constitutioned scions are grafted upon strong-growing or vigorous stocks, the scions will not, as

may be at first sight supposed, be always strengthened or invigorated by this process. It must be borne in mind that the feeding power of the root is regulated by the leaf development of the plant which it supports; and if this is insufficient, the stock will for a time expend its surplus energies in the production of shoots under its junction with the scion, and these, if persistently repressed, as they necessarily must be, will ultimately render the roots inactive and the plants unhealthy; but on the other hand, if the scions of vigorous varieties are worked upon less vigorous kinds, the strong-growing scions compel, as it were, the roots of the stock to exert their utmost energies for the support of the scions; and precocity and fruitfulness are generally the result. This is exemplified in the case of the Pear worked upon the Quince, the Apple upon the Pommier du Paradis, the Cherry upon the Mahaleb stock, &c. But in carrying out this principle it is necessary to take into consideration the character of the soil. In light poor land it will generally be found that the Quince and the Paradise stocks will fail to maintain in anything like a healthy and fruitful condition, for any length of time, vigorous varieties of the Pear and the Apple. It may indeed be doubted if these stocks can with advantage be used upon such soils, unless they are liberally enriched by the addition of clay, loam, and possibly some fertiliser. As has already been said, what are called restricting stocks are in many cases found to be exceedingly useful; but they cannot be indiscriminately used on all kinds of soil. It should also have been mentioned that in the case of raising seedlings, with the view of obtaining new and improved varieties, the Quince and Paradise stocks can be used with great advantage; for, although seedling plants of the Pear and Apple will, in the course of time, come into a fruitful condition upon their own roots—some in the course of a few years—yet others will take a lifetime almost to prove them worthy of cultivation or otherwise.

Effects of grafting vigorous fruits on weakly ones.—As a remarkable example of the influence of the scion upon the stock may be mentioned the case of an old Ribston Pippin Apple tree, a much-esteemed variety, but known to succeed indifferently on some kinds of soil and in some situations. The tree in question occupied what may have been considered a favourable position, viz., the west end of a south wall in an old garden. The original soil was not of good quality, being light and gravelly, and the tree, although annually producing some good fruit, was at the same time in an unhealthy and cankered condition. It covered, however, a large portion of wall, and, being trained horizontally, each alternate rod or branch was removed to within a few inches of the stem, and these were grafted with scions of a strong-growing culinary Apple, named Alexandra, which grew rapidly; and the intention was to have, in the course of a few years, removed the remaining branches of the Ribston and re-grafted them also with the sort just named. This intention, however, was very willingly abandoned, as the portion left of the Ribston improved so greatly in condition that it was gladly retained. It is also quite possible that many of our weakly-growing, but finely-flavoured, dessert Apples, when grown in the standard form, might be invigorated by this or similar means, which might prove more satisfactory than the old plan of heading down and re-grafting, as trees so treated are seldom found to remain healthy for many years afterwards. A similar practice might also be advantageously followed in the case of some of our finest, although weakly growing, Pears and other fruits, whether on walls or in the standard form. Even in the case of the Grape Vine, some of the finest and best finished bunches I have seen of the Muscat Hamburgh and Mrs. Pince's Black Muscat were produced upon rods which grew upon a stock that also supported rods of the Trebbiano and the Alicante varieties. It is thus evident that the feeding power of the roots of plants is regulated by the foliage or leaf growth. But in order that plants may de-

rive the full benefit of increased feeding power, it is necessary that the soil in which they are growing should be judiciously enriched, as it would be impolitic to create or excite an appetite, and at the same time withhold the wherewithal to appease or satisfy it. In alluding to the influence of the scion upon the roots of the stock, a writer in the *New York Tribune* lately said that, in the case of different varieties of Apples all grafted in the same way, when the plants were moved after three or four years' growth, a uniform character of root was found in each sort—that is, the stock or seedling plants in rooting did not show their individual habit, but assumed that of the variety grafted on them. Whether this is always the case or not, I am unable to say; but in more than one instance in this country the scion has been known to induce certain distinct peculiarities in the stock, such as that of variegation.

Grafting Leguminous plants.—Some years ago, being anxious to ascertain the influence of the stock upon the scion, and *vice versa*, I chose for experiment plants not usually grafted *viz.*, the Leguminosae. Green Marrow Peas were worked upon early white varieties, such as Ring-leader, with the view of ascertaining if anything like an increase of early development would be the result in the case of the Green Marrow. The large green Windsor Bean was in like manner grafted upon the early Mazagan, the common Scarlet Runner upon the dwarf French Bean, and the latter upon the Scarlet Runner, &c. All these grafted plants grew freely enough, with the exception of the dwarf Bean, which, so far as I can recollect, did not appear quite happy upon the roots of the Scarlet Runner, while the latter grew in all respects as freely upon the roots of the dwarf Bean as other runners did upon their own roots. As regarded the Mazagan and the Windsor Bean, no result which could be ascribed to the operation of grafting could be perceived, nor yet as regarded the early and late varieties of Peas. But in every case the seeds produced by the grafted plants were carefully labelled, preserved, and sown during the following season, at the same time and in juxtaposition with seeds of each of the respective sorts not so treated, and anything like deviation from the normal type was carefully watched for. In no instance, however, did this appear, with the single exception of the Green Marrow Pea (Yorkshire Hero), which had been produced upon the roots of Suttons' Ring-leader, a very early variety. Instead of the produce of the grafted plant being earlier than that of the ordinary stock of this variety, it was, if anything, later, and grew quite 1 ft. higher. This peculiarity the seed descended from the grafted plant maintained from year to year; but in no other respect, such as colour or quality, did it differ from the normal type.

PETER GRIEVE.

Melon disease.—I should be glad of any information which your readers can give me respecting its prevention or the way to cure a disease that has befallen my Melons. I only became acquainted with it last season, and it was not confined to our place alone; on the contrary, Melons in other places in this neighbourhood also suffered, and this season I know of one place in which the early Melons have gone clean off after appearing in good health for some time. Our beds were properly made, and we had plenty of bottom heat; since the disease has appeared I have gone over the plants daily with lime and sulphur mixed, and have dusted every place affected. In this way we have been sometimes able to keep the plants lingering on until the fruit was nearly ripe. I recollect closing in a three-light pit with six good Melons in each light just done swelling; the plants looked in good health, but, alas, the next morning when I called to see them, it was all over with them; on examination the stems were found to have completely rotted through. This disease is not the canker, as sometimes seen on Melons, for it will break out sometimes 2 ft. from the base of the plant.—A. M., Dorset.

ORCHIDS.

BRITISH ORCHIDS AND THEIR CULTURE.

Few native plants are more interesting, or better repay the bestowal of a little care on their cultivation, than the several species of hardy Orchids. The peculiar construction and mimicry of the flowers, combined with their delicate colouring and rare local distribution, all serve to make them favourites with cultivators of British plants. Of hardy British Orchids there are sixteen genera, or in all about forty species, some of which are extremely curious and pretty. Their cultivation seems, however, to be to a great extent neglected, and for what reason it would be difficult to say, more especially as the floral beauty of many of them far more than compensates for the little trouble incurred in their cultivation; notwithstanding this, however, we know of only a few persons interested at all in their growth, or who make Orchid growing a speciality. A useful book might be made on British and other hardy Orchids, the want of which I have no doubt forms a serious drawback to their successful cultivation. In Benthams and Sowerbys botanical works passing notice is certainly taken of the different hardy Orchids, but that is hardly sufficient for the amateur who wishes to cultivate and classify the different species and varieties. It is also a difficult matter to purchase the different British Orchids, as only a few nurserymen keep them, thus placing another barrier in the collector's way. The plant exchange system, however, remedies this to some extent. We have derived great pleasure from a bed of hardy Orchids in the garden here, and I may add that it has been greatly admired by most visitors. It was formed in a shady corner by simply digging into the loamy soil of which the garden is composed a quantity of peat and leaf-mould, and when planting the tubers giving lime rubbish to those requiring a calcareous soil. Excepting, perhaps, the species of *Ophrys*, hardy Orchids are not at all fastidious about soil, a good example of which may be seen in our two commonest kinds, *Orchis mascula* and *O. maculata*, these being found in soils of the most opposite descriptions.

The following list of Orchidaceous plants found in this neighbourhood is taken from Griffith's "Flora of Carnarvonshire and Anglesea"—

<i>Malaxis paludosa</i>	<i>Orchis Morio</i>
<i>Epipactis latifolia</i>	<i>maculata</i>
<i>ovata</i>	<i>maculata</i>
<i>palustris</i>	<i>latifolia</i>
<i>Cephalanthera grandiflora</i>	<i>pyramidalis</i>
<i>Listera ovata</i>	<i>conopsea</i>
<i>cordata</i>	<i>Habenaria albidia</i>
<i>Spiranthes autumnalis</i>	<i>Ophrys muscifera</i>

To these may also be added *Habenaria bifolia* and *H. viridis*, both of which I have found on several occasions, also varieties of *Orchis mascula* varying in colour of leaf from that heavily blotched with purple to that which is perfectly green, the flowers being of all shades from rich purple to nearly white. Some of those mentioned in the above list are, however, extremely rare and local in their distribution, such as *Malaxis paludosa*, *Cephalanthera grandiflora*, and *Listera cordata*; a few are also hardly worthy of cultivation, being only interesting from a botanical point of view.

The Orchis can hardly be said to be propagated in our gardens, as when removed from its native habitat and transplanted in a shady corner there it remains, but seldom increases. *O. mascula* and *O. maculata* are, however, much improved by cultivation, wearing, when grown in a favourable situation and soil, a very different

appearance from that which they usually present on poor, half-starved soils. Good, rich loam, rather damp, produces by far the finest specimens of these Orchids; and as to situation, that is not of vital importance, provided partial shade is secured. I have frequently seen green-leaved forms of *O. mascula* and *O. maculata*, but the colour of the flowers was not affected thereby. Closely allied to the latter species is the Marsh Orchid (*O. latifolia*), usually found in similar situations, but it prefers damp soil, its native habitat being marshy, mountain ground among Sphagnum. This species resembles *O. maculata* so much, that it is often found difficult to distinguish any difference, and it is by many considered to be a mere variety. Three striking and very desirable species will be found in *O. militaris*, *O. fusca*, and *O. pyramidalis*, all of which require similar treatment; they should have a quantity of lime rubbish mixed with the loam in which they are planted. The flowers of *O. militaris* are reddish grey with dark stripes; and those of *O. pyramidalis*, which are sweet-scented, of a bright rose colour. Excepting, perhaps, *O. Morio* and *O. laxiflora*, none of the other species of Orchis are worthy of cultivation. The flowers of *O. Morio*, which vary much in colour, in some cases approach very near those of *O. mascula*, and it is frequently difficult in the case of growing plants to distinguish between this species and the green-leaved form of *O. mascula*. The leaves of *O. Morio* have, however, a slight silvery hue overlying the green, are more pointed, and the tubers nearly round. A rather dry situation in pure turfy loam seems to suit the different species of *Habenaria*. We have grown *H. bifolia* and *H. albidia* very successfully, the latter especially appearing stronger each year when placed on a sort of mound raised above the general level of the surrounding ground. *H. bifolia* is a charming plant, which produces pure white flowers deliciously perfumed. It seems readily propagated, as last season I particularly noticed a single small clump of this plant in a meadow bearing three unusually large flowers on stems 1 ft. in height, and on examining the same plants a few days ago, I was surprised to find that the number had increased to seven, six flowering stems being a few inches above the leaves. My reasons for observing this particular clump so closely were that I fancied from the size of the flowers that it might be *H. chlorantha*, which I am not aware has been found in this district. What is the difference between *H. bifolia* and *H. chlorantha*? A few tubers of the latter, kindly sent me by Mr. P. Neil Fraser, are much smaller, and the leaves not more than half the size of *H. bifolia*. On uncultivated mountain pasture in soil on which the Gorse thrives. I have seen *H. bifolia* and *H. albidia* flowering freely. The former I have, however, met with in lowland stations far more luxuriant than at higher elevations.

The popular name of Man Orchis given to *Aceras anthropophora* is certainly well bestowed, as the resemblance to a hanging man is very apparent. It is a sturdy little Orchis, with yellowish green flowers on a leafy stem, some 8 in. or 9 in. in length. This rare plant has only been found in a few places in Eastern England. It succeeds well here planted in sandy loam with the addition of a little chalk, and in a rather shady position. Perhaps in all the Orchid family none are more singularly beautiful and distinct than the three species of *Ophrys*—Bee, Spider, and Fly. They are easily grown in the garden on well-drained hillocks of calcareous soil, or pure loam from a chalky bottom, and by allowing the Grass and herbage to grow around the plants, sufficient moisture for them will at all times be secured. Perhaps the mildness of our past winter had some effect on the Bee Orchis, as this season it

has bloomed unusually early, the first flowers appearing in the beginning of April, and nearly two months before their usual time. The broad-leaved *Epipactis* (*E. latifolia*) is pretty generally distributed throughout our woodlands. It is a tall handsome plant when well grown, and thrives luxuriantly in rather damp, shady woods, in rich fibrous loam, producing spikes of purplish green flowers loosely placed on one side of the stem. The Marsh *Epipactis* (*E. palustris*) is a rarer plant than the above; it has pinkish white flowers, and is found in damper situations. The several species of *Cephalanthera* are closely allied to *Epipactis* both in habit and foliage. We have not grown any of this genus, having been unable to procure specimens. *Orchis maculata superba* seems a more robust and finer form than *O. maculata*; it has stiff foliage, thickly covered with small purple spots. The flowers are also, I believe, superior to those of *O. maculata*. For my plant of this I am indebted to the Rev. H. Harpur Crewe.

With *Cypripedium Calceolus* we have been singularly unsuccessful both last year and this, having had nice healthy specimens when several inches above ground cut over and destroyed in a single night. We do not attribute this to the work of slugs, as the plants were cut over just below the ground level, but to a small worm which enters the stem near the bulb, and gradually works its way upwards. Anticipating better results in future, we have purchased another specimen, and so far our perseverance has been rewarded by a strong plant that will probably flower during the present season.

The above is a list of the principal Orchids worth growing; we have, however, several others in cultivation, as *Listera ovata*, *Liparis Loeselii*, *Goodyera repens*, &c., all of which are more interesting as specimens of British plants than remarkable for any individual beauty of foliage or flowers which they possess.

A. D. WEBSTER.

Penryn, Bangor, North Wales.

***Odontoglossum citrosimum*.**—This beautiful plant is one belonging to the list of Orchids that should be grown by everyone who has a small greenhouse, for it is one of the loveliest and sweetest scented of the genus. It bears from large highly polished bulbs long and slender flower spikes, consisting of from a dozen to twenty pure white blossoms with yellow centres, arranged in a large cylindrical drooping cluster. The perfume is delicious enough to scent a large house. It is not a difficult plant to manage, succeeding even in a warm greenhouse. One of the finest flowered specimens we have seen of it is a plant in Mr. Soper's garden in the Clapham Road, a garden which, having regard to its being within three miles of St. Paul's, contains an unusual number of interesting plants.

***Dendrobium barbatulum*.**—This is a charming Orchid, and one that is far too uncommon, for few Orchids have such delicacy of colour and elegance either in or out of bloom. The flowers are rather small compared with those of the majority of *Dendrobies*, but are produced in dense clusters along slender pseudo-bulbs, which on well grown plants are upwards of 1 ft. in length. The flowers are pure white with a faint bluish tint on the labellum, which is long and pointed and furnished with a tuft of dense, short hairs. It grows well on a block or suspended pan in a warm greenhouse, and remains for several weeks in perfection in early summer. We lately saw it beautifully in flower in Mr. W. Soper's garden, in the Clapham Road, in a small house containing a mixed collection of stove plants.

***Cattleya Sanderiana*.**—This charming new *Cattleya* is now in flower at Lake House, Cheltenham, the residence of Mr. G. Neville Wyatt, who writes that even in the case of a small plant it is very grand and distinct. It resembles

Cattleya gigas, but varies from it in the deep crimson in the lip, running almost entirely up the throat, and in not having the two yellow eyes of *C. gigas* on the lip. The latter is also opener and flatter, and the sepals and petals of a deeper rose than those of *C. gigas*. The tube of the labellum is much shorter than that of *C. gigas*, and the plant altogether is an improvement on that species. We shall doubtless get some splendid forms of this *Cattleya* when the strong plants, which showed that ten or twelve flowers had been borne on a spike in its native habitat, come into bloom. At present only two have flowered to my knowledge, the one under notice, and the other with Mr. Schofield, of Manchester, but Mr. Percival, of Birkdale, has some well advanced.—JAMES O'BRIEN.

The Man Orchis in North Wales.—In the remarks on hardy British Orchids (p. 158), to which Mr. Wolley Dod referred in your last issue, I did not state that I had found the Man Orchis (*Aceras anthropophora*) in this district. If, however, Mr. Dod has a copy of Griffith's "Flora of Carnarvonshire and Anglesea," he will see that this Orchid is there mentioned as a native plant; and this was my authority for including it amongst the list of Orchids found in this neighbourhood. On asking Mr. Griffith about it a few days ago, he was doubtful if he had ever found it, and thinks he must have confounded this plant with some other species. I have never heard of the Tway-blade (*Listera ovata*) being called the Man Orchis, nor is such a synonym recorded in any catalogue or botanical work in my possession. We have *Aceras anthropophora* in the garden here 1½ in. in height, with a flower 2½ in. in diameter at the base. *Listera ovata*, which is a nuisance in the park here, will not be in full flower for some time yet; therefore, it was impossible for us to have confounded these two plants. It may interest Mr. Dod to know that a friend of mine has found the Bee Orchis within a much less radius than ten miles of Llandudno.—A. D. WEBSTER, Penryn, North Wales.

Pruning Orchids.—We have, I think, almost heard enough of Orchid pruning for the present; but if "J. S. W." succeeds so well in pruning *Dendrobium Wardianum*, how is it he has not tried it on some other species? I quite agree with "J. S. W." that by cutting away the old bulbs of *D. Wardianum* he will increase its breaks; but I think he will find that by a continuance of the practice year after year the growths will get weaker, and in a few years be worthless. Why does he not tell us about some other Orchids on which he has tried the system? I take *Odontoglossum*, for instance. I have now in full flower an *Odontoglossum Alexandre* of the Andersonianum type, but superior in every respect to that well-known variety. It has two spikes on it and the other twenty-nine. The same break showed three spikes, but I pinched one off. I fancy "J. S. W." with all his pruning will not exceed that. "J. S. W." says (p. 268) that he should have no objection to accept Mr. Spyer's challenge if it was practicable, or likely to serve any useful purpose. Well, if he would show, say at Manchester, two or three of his plants that have been subjected to, say, two or three years' pruning, I think he would find most gardeners interested in Orchid culture there to see them. From my own experience I should not like to try the system at present. All back bulbs, I think, have a function to perform during the resting period, and I trust "J. S. W." will see his way clear to show us an example to the contrary.—F. F.

Anti-vivisectionists.—At a ladies' sub-committee here our worthy secretary laid before us your last number of THE GARDEN, with the following passage scored and underlined; "The true rosarian is down upon the fly, grub, or caterpillar the moment he spies either; it is the first catching alive and killing on the spot that keeps the plants clean and strong throughout the season. It is not only what the insects eat that is to be regretted, but the entire Rose tree is soiled

and weakened by the presence of maggots and aphides. Hence there must be no waiting till they form a colony—the colony a myriad—but the moment a grub, a fly, or caterpillar is seen, let it be squashed." Your correspondent may not have read the sentence pronounced on such detestable practices by the Lord Chief Justice of England, Baron Coleridge: "What would our Lord have said? What looks would He have bent upon the offending creatures which He loves dying under tortures deliberately inflicted" (*Fortnightly Review*, February, p. 236)? True, this appeal was addressed to the men who usually kill animals on the pretence of being able so to cure our own diseases, but it is obviously as applicable to the dreadful crushings of these poor animals (which the learned Mr. Hutton has proved to be our fellow-creatures) solely under the pretence of the health of Roses and other plants. We cannot believe the estimable and compassionate Canon Hole can lend any countenance to the wholesale cruelties of Mr. D. T. Fish.—P. F. C., Victoria Street.

GARDEN FLORA.

PLATE CCCXXXVIII.—*CAMPANULA ALLIONI*.

A CHARMING addition to rock garden plants from the high Alps of Central Europe is this little Bellflower, which must find its way into all good gardens. As to its beauty and distinctiveness from other cultivated kinds, the annexed plate, which is a good representation of a plant of this Bellflower growing in the York Nursery, speaks for itself. It belongs to that section of the genus *Campanula* known as *Medium*, of which the Canterbury Bell is a familiar example. The plant under notice belongs to a subdivision of the section numbering some half dozen species, all characterised by the root-leaves being crowded into dwarf tufts, and by the flowers being solitary on short, erect stems. The species allied to *C. Allioni*, in cultivation, are *C. dasyantha* and *C. altaica*, neither of which are so showy or valuable garden plants as *C. Allioni*. This Bellflower was in cultivation some sixty years ago, but until lately was lost to gardeners. A few years ago Messrs. Backhouse re-introduced it in quantity, so that there is little likelihood of its becoming again extinct. The collector of this beautiful plant speaks of it as "forming tufts from 1 ft. to 3 ft., or even more, across, smothered with brilliant, bluish-purple flowers, borne solitary or in pairs on stout stalks 1 in. to 3 in. high. The flowers (measured on the spot) were 1½ in. long, and 1½ in. in diameter at the mouth of the corolla. It was found growing at an elevation of from 5000 ft. to 7000 ft., and completely covered a bank of shale and strong loam with its showy flowers. It creeps with underground runners, and only grows about 2 in. high. The individual blossoms are nearly as large as those of the Canterbury Bell." It appears not to be at all fastidious under culture, inasmuch as it grows freely in various soils and situations on well-formed rockwork in full exposure, and it possesses the desirable quality of flowering freely in a small state. A full account of the alpine *Campanulas* will be found in a monograph of the genus by the late Mr. J. C. Niven in Vol. VIII. of THE GARDEN. W. G.

Production of roots.—There can be no objections whatever to trying the experiment on this subject in the way suggested in THE GARDEN (p. 291). I have tried the plants in different pots before with a similar result, but it was suggested then that the plant in the pot of rich soil would make the most foliage, and consequently the most roots, as the leaves are also acknowledged to help in the production of roots. I therefore tried the experiment with the sand and soil, half and



CAMPANULA ALLIONII.

half in the same pot to get over this difficulty, as, whatever influence the leaves might exert, it was optional on the part of the roots to take which side they liked best. I choose a very poor soil—sand—and a very rich one for this reason, viz., the theory of the poor soil advocates is that the poor soil produces the most roots, because they have to hunt more industriously for food and multiply accordingly. The poorer the soil, therefore, the more roots there should be, and sand is poor enough. It is the misfortune of the opposite side that they have not yet defined what a poor soil means.—J. S. W.

RAMBLES OF A PLANT COLLECTOR.

(Continued from p. 102.)

I LEFT Shamani at dawn (I suppose about half-past three) and rode to the mountain. After we left the sea-beach we followed the rocky bed of a mountain torrent some distance and then commenced to climb. We left our horses at a wood-cutter's hut, about 1000 ft. up the mountain, my object being to see what species of Firs were forming the distinct black band round the top; but my object was not to be fulfilled to-day, for I found after I had ascended 2100 ft. that it was perfectly impossible to get up that way; I therefore returned leisurely, and I came upon two fine Junipers; one was *J. japonica*, the other in the way of *J. rigida*, but creeping along the ground. I also found magnificent specimens of a deciduous *Magnolia*, with flowers as large as those of *M. grandiflora*, and deliciously scented; in fact, in some of the valleys which we crossed the scent was quite overpowering. A beautiful *Styrax* abounded everywhere, and masses of pink and reddish *Rhododendrons*. Large *Umbelliferae*, some of them 15 ft. high, spread out their heads over the confused masses of *Actinidia*, *Glossocoma*, and *Artemisia*. *Aralia Maximowiczii* and other plants were here, as I saw them at Sapporo, perfect giants, and here and there was growing the feathery, blue *Pinus parviflora*. I came back to Shamani and took fresh horses. On returning we passed some glorious places for plants—deep ravines, with water rushing down the middle over huge boulders, and under continual shade from the dense Firs and Pines growing on the banks; rocks covered in masses with Mosses, Ferns, and Saxifragas; in other places, Vines and *Actinidias* stretched out like long ropes to the tops of large Beech and Oak trees. *Magnolias* appeared everywhere.

Making Horidzumi my headquarters for the time, in a few days I was rambling over the mountains, now within a distance of six miles. Look where I would at the back of the town, mountains, range after range, appeared. In front of the village was a pretty harbour with two reefs of rocks running out on each side, forming a safe retreat for Japanese junks, the entrance not being wide enough for large vessels. High bluffs run along the coast for about seven miles. On each side the town numerous small streams emptied themselves into the sea along the bluffs, running from the near mountains down ravines, forming splendid places for all kinds of plants. The mountains generally on the N.E. side were not thickly wooded, but on the S.E. side I never saw such thick forests of Pines and Firs. After a short rest we made preparations to descend the large range of mountains between Horidzumi and Shamani. We ascended about 1000 ft. on the road to Shamani, then we turned off along a ridge leading to the top of the mountains, and we were soon in the thickest of the forest; we came out from amongst the trees when we had risen about another 500 ft., and there our path was open, having struck the barren ridge leading to the top. The scenery here was grand in the extreme; we had a view of the whole of the

S.E. Cape Sjerrimo. Here and there were clumps of an Abies, supposed to be a variety of *sachalinensis*, and White Bark and Birch. The hillside to the east was covered with a dwarf Bamboo, and was evidently the feeding ground of immense herds of deer. I found a beautiful little *Thalictrum*, with leaves like *Adiantum cuneatum*, but of harder texture; this will make a pretty rock plant. *Woodsia Veitchii* was growing everywhere. *Pteris aquilina* was also very plentiful. When we had ascended 2500 ft. we came to a sheltered valley on the east side, and one portion of it was nearly covered with very fine specimens of *Pinus parviflora*. This is a longer leaved variety than the Pine mentioned by Siebold, but only a variety. I took it to be *Cembra* at first, but I found the seeds winged, therefore differing from those of *Cembra*. In this valley was also growing *Abies Glenii*, a Spruce not unlike *A. orientalis*. I did not think this worth introducing, as I only saw one or two good specimens, and the tree was evidently a very slow growing one. Two species of Juniper were also growing higher up the mountain amongst the rocks, with a very beautiful dwarf Pine (*Pinus Cembra pygmaea*). This was about 4 ft. high, spreading along the ground, and as the tops of the branches formed a level surface, they looked like some of the trained flat-top specimens in the Japanese gardens. The foliage was bluish. I took specimens, and came in September to get seeds, but the bears had been there before me, and taken them all. At 3000 ft. the forest trees ended, and the hills were rather bare of vegetation, nothing but a few stunted Pines, Bamboo scrub, and tufts of Grass. We came to the top at last, about 3500 ft.

As we returned I turned off the ridge of the mountains, and as I walked amongst the dwarf Pines I came suddenly upon a bear about half-grown, and before he had time to run I brought him down with a bullet through the lungs. I established at once my fame as a shot. This, of course, was the talk of the town for days. We saw numerous ground squirrels, pretty reddish furred animals, with yellowish and black bars down the back. We left the track by which we came up the mountain, as our Aino told us he knew a nearer road through the forest. He led the way, and we sent another Aino home with the bear. As we were passing down a beautiful sheltered valley filled with monster Oaks, Willows, and Alders, we came upon an old dead Oak lying on the ground covered with a yellowish fungus. This was a prize, and the tree was soon stripped of the fungi. I had them fried and in soup, and found them excellent. They grew in masses, and were shaped like little cups. My gun was a double-barrelled muzzle-loader, one rifled barrel. I had now nothing left but snipe shot No. 8, and I used to take a short walk every morning to shoot a woodcock or a snipe for my dinner. I could have shot dozens if I had wished, as the little brooks and springs about were swarming with them. I had even shot them in the hotel garden. One morning I took my usual stroll into a little gorge with a spring at the head, about $\frac{1}{2}$ mile from the hotel, and as I neared the spring amongst low Alder scrub, something rushed about the bushes. I thought it was only a fox, for I saw foxes frequently. I went up, however, and the moment I arrived at the end of the gorge a bear stood up on his hind legs, and opened his mouth at me ready for a hug. My gun was loaded with $\frac{1}{2}$ charge of snipe shot, so I levelled at his breast just where the lower ribs join. I shot, and down fell bruin. To make sure he was dead, I gave him a knock on the head with the butt of my gun, and of course broke the stock. I was delighted, however, with the unexpected sport, and went down to the

hotel and fetched some Ainos to bring in the game. I was fêted and praised without end both by Japanese and Ainos. One day I was rambling up a river-bed looking for beetles, when I came suddenly upon an Aino village. I had a good look around, for all the dogs and women "cleared out," as the Yankee says. I found a rude sort of a rack at one house, on which there were about a dozen bear skulls; each skull was stuck on a forked pole and surrounded with shavings. My boy told me that the Ainos worship them. I never saw any signs of religion amongst them, except a dance on the beach one stormy night when somebody was drowned. They made fearful howls. I was invited to dine with one of the government officers, and met at dinner some dozen Japanese gentlemen. I went about 5 o'clock. Fish was brought in on magnificent blue and white porcelain dishes. A large salmon roasted was carved up with chopsticks, and set before us with pickled Radish leaves and other delicacies. The leading Japanese then said they wanted to know what my religious ideas were, and if I would explain Christianity to them. I did as well as I was able. They then told me what their ideas were, and I found that these people were not quite the heathens we take them to be; in fact, if the people in England only knew what sort of beings the Japanese generally are they would be a long time before they sent missionaries there. One of the Japanese told me, "It is of no use sending men out here who don't know anything else except their Bible; we want doctors, and thoroughly well educated men that can talk to us." The gentleman in question worshipped a great spirit, and every night his two sons knelt down before the little shrine in a closet in the principal room (such shrines are in every Japanese house), and prayed to the great spirit for health, protection, and prosperity. What could a man do more? After religion, our next subject was women. A woman is considered inferior to a man in every way in Japan, and it is only of late years that she has been educated. My companions were astonished when I told them of the freedom and social standing of a woman in England. This conversation lasted till about 8 o'clock, during which time we ate a little fish, and had a cup of wine with each other. I was presented with a cup, and the gentleman who wished me to drink poured it out, but did not drink with me. I then presented the cup to some one else, and poured out the wine for him. I knew that when I asked for Rice the conversation would cease, and dinner proper would then commence. I then asked for Rice, and we had several sorts of soups, more hot fish, pickles, Rice, and finished up with washing out our Rice cups with Tea, an operation that invariably finishes all Japanese meals.

When I had thoroughly explored all the mountains within a day's journey from Horidzumi, I thought I should like to see a little of the N.E. coast, so on August 3 I started with my boy and journeyed as far as a place called Sara-ru. As we passed over some mountain 1700 ft. I was rewarded by finding a beautiful blue *Hydrangea*. The flower opens green and afterwards changes to a beautiful dark sky blue. This was in very large masses about 2 ft. high in all the sheltered valleys. *Hydrangea paniculata*, too, was everywhere, particularly on the sides of the mountain streams. Enormous quantities of *Aralia Maximowiczii* and *Magnolias* were in the forest of deciduous trees, *Sambucus* with large bunches of scarlet berries, and here and there bushes of the very fine flowering *Clorodendron trichotomum*, with it large bunches of white and pink flowers. I was delighted to see this in full flower; it is a strongly scented shrub; some of the heads of flowers measured 1 ft.

across. The following day I passed through the same kind of forest I had seen before at Sapporo, and I found the Black Currant growing wild. Raspberries were also very plentiful, with a kind of Blackberry, all very acceptable to us. We gathered large quantities and had them boiled down with sugar, and they made excellent preserves. The heat has been rather oppressive of late; to-day the thermometer stood at 90° in the shade at an elevation of 1000 ft. The nights were always cool, so that we could sleep comfortably. I kept on my journey till I came to a large Aino town called Tocats. I could see I was getting away from the mountains and that the vegetation was the same as that I had seen before. I therefore decided to return. I should have had a journey of about 200 miles before I should have met with any more mountains. This information was given me by our host at the hotel; he had been with an exploring party of Japanese officials, and knew the country. Here the Ainios came in a crowd to see me, called me their brother, I suppose because I had a good crop of beard; they gave me stone arrow-heads, a bow and quiver, and invited me to a hunting party, which proved a failure. I had a ramble in the forest, and found exactly the same plants I found in other localities. I was rather frightened here. Two Ainios and a bear were brought in dead just after we arrived. The Aino and his son were hunting, and while walking through the tall *Eulalia* and Bamboo it is supposed they came suddenly upon a bear, for when found the boy's head was nearly off, having had a paw from the bear. The old Aino was dead in the embrace of the bear, though the latter was stabbed to death by the Aino in the struggle. Such are the dangers of Yesso travel. I returned in three days to my head-quarters, and commenced preparations for the seed season, making my paper bags, &c. Time was rather heavy on my hands, so I used to go fishing for trout in the mountain streams. We used salmon roe for bait. A line was made from our horse's tail in a few moments. I always carried fish-hooks; and, once ready, trout weighing from 2 oz. to 1 lb. were pulled out as fast as we could prepare our lines. I never saw so many trout in one stream. I also shot three red kingfishers and one large barred kingfisher. Game at this season is rather scarce; the snipe and woodcock have gone, and grouse are difficult to find, so that we have not much to eat, except fish, Rice, and vegetables, plenty of green Peas, young Potatoes, and young Indian Corn; the latter is an excellent vegetable, and ought to be used more than it is in England. I had also by this time made a large collection of dried plants, having specimens of nearly all the wild plants growing round here. One day I found an old rubbish pit in the cliff on the seashore, and I dug in with my stick and found obsidian chippings, arrow-heads, flakes, pottery, and shells—a nice little collection. I often used to find obsidian arrow-heads on the hills in the rain washes. The Japanese gentlemen here gave parties several times a week, to which I always had invitations; sometimes a concert, sometimes dances, always amusing, and sometimes I used to give them a tune on the shamisin (a sort of banjo).

C. MARIES.

The gale at Claremont.—I am pleased to say that the violent gale of April 29 left us comparatively uninjured. Our Peach wall (E.S.E.) would doubtless have felt its full force had not the cross walls in a great manner afforded it most welcome protection. The foliage in some instances was slightly injured, but this is the exception, not the rule; the fruit, a heavy crop, has escaped altogether. The majority of Pears are on a west wall, and these retain full vigour. One of my first visits was paid to our fine specimen of *Salisburia adiantifolia*, the delicate leaves of which show no

signs of injury. A good specimen of *Laurus Sassafras* in its immediate vicinity, however, has been unmistakably injured.—E. BURELL.

ROSE GARDEN.

THE DEVONIENSIS ROSE AT HOME.

VISITING the pretty conservatory of an amateur the other day, I was much struck with the extreme floriferousness and fragrance of his Roses, running up and quite covering two of the roof rafters. At first sight I took it for *Lamarque* at its best, only it had a soft, creamy look not possessed by that useful variety. The buds, too, had a soft pinky hue, while those of *Lamarque* are white as driven snow. On approaching nearer, I was delighted to find the free-growing Roses covered with fine flowers were two noble plants of the *Devoniensis*—the common, not the climbing variety. Would that the designation common indicated that it was really generally grown; but it is really not so. In most gardens it is more or less miffy in the open air, and few seem to grow it well under glass. Grown as I saw it the other day, it can hardly be said to be second in merit to *Niphetos* or *Maréchal Niel*, while in beauty of bud and fragrance it surely surpasses both the soft pink of the outer petals, melting, as it were, into the delicate cream or buff of the inner. Fully expanded it loses its beauty of form, but nothing can rob it of its sweet fragrance and soft colour. Those fine plants were grown in 12-in. pots. It seems they were hardly ever pruned, and kept on flowering throughout most of the year. The soil was rich loam, and they were mulched over with manure, and seemed to like, as they assuredly luxuriated in the rich food. Huge shoots with fine spreading leaves were rising up in all directions, and promising to give a perpetual feast of *Devoniensis* throughout the season. This is just what their owner assured me they had done for several seasons past, ever since he got *Devoniensis* true. Before this he had grown some miffy, mangy varieties that would not grow, and also the climbing one, which grew too much and yielded few flowers. But now he had got and meant to keep the right sort, and would not exchange it for all the *Marchals* in the world. This was doubtless the language of honest pride and enthusiasm, but it suggests the inquiry: Are there more than two *Devoniensis*, the common and the climbing variety? The widely varied experience realised at different times and places would suggest that there were. Though the *Devoniensis* is claimed as an English seedling from the original yellow Tea-scented Rose introduced from China, yet this claim has been disputed, and the French have also claimed the merit of originating this charming Rose. Can it be possible that they sent a duplicate—a weaker and less valuable variety? Will some one rich in *Devoniensis* experience tell us all they know about how to make it grow like a weed, to use the expressive phrase of my amateur friend?

D. T. FISH.

INVIGOURING ROSES.

So far the growth on our Roses is not at all satisfactory, and the dry, cutting winds by night and hot, scorching sun by day do not improve it. With a view to stimulate it a little, all Roses should now have several good soakings of manure water. It is a good plan to stir up the surface soil a few inches deep or remove some of the earth from the roots, so as to form a basin about 18 in. wide. This will enable the roots to get the full benefit of what is given in the shape of liquid. When water is poured upon a hard, flat surface, a good deal of it runs to waste out of the reach of the roots. If strong vigorous growth is required, the roots should have plenty of water from the time they commence to grow until the trees come into flower; and if the manure water given be made from animal manure, the growth will be stronger and the flowers larger and of higher colour than when only plain water is given. Two good

soakings every week will be of great service to the plants. Pillar Roses and those trained to walls with their roots in narrow and shallow borders are often overlooked as regards watering. All through the summer months such plants should be watered as often as it is necessary to keep the soil moist about the roots the whole depth of the border. I am no great advocate for using artificial manures for Roses; but still there are some which I have employed in a moderate way with advantage. When I have been short of manure water, I have given our Roses one dressing in May either of Amies' chemical manure or Clay's fertiliser, at the rate of two table-spoonfuls to each plant. The soil being first removed to the roots, the manure is then applied, the soil is put back in its place, and then each plant is gently watered with about two quarts of water. I find after several years' trial that this answers very well. It is sufficient to promote a steady growth without creating undue luxuriance, for it should be borne in mind that it is soft, luxuriant growth that is the first to succumb to severe frost. All manures may be said to be beneficial to Roses up to a certain point, and so I have found it in practice. It therefore behoves us to be careful in the use of them. I have never known the free use of good, well rotted manure from the farmyard or the hotbed do any harm, but I have had to repent using diluted guano and similar stimulating manures. True, the Roses made extraordinary growth, but it was so succulent and immature when winter came that the first severe frost killed the greater portion of it.

Mulching Roses.—Some half-rotten manure is very beneficial. A mulching of 2 in. or 3 in. thick is not too much; the surface should be pricked over with a fork 1 in. or 2 in. deep, and if the soil is dry it should be watered thoroughly before the mulching is put on. Under such treatment the plants will take care of themselves for a week or two, *i.e.*, if they are only intended for garden decoration. But growers for exhibition will need to keep constantly watching the state of the weather; if it should continue dry, root watering must not be neglected, although the surface may be mulched over. In watering mulched Roses it is a good plan to draw the manure aside first and then replace it when the watering is done.

Rose maggots are unusually plentiful, and we have had to set vigorously to work to pick them off. We do not stop to examine every curled leaf to find the maggot, because we know if it is not there at that particular moment that it has been, and that the leaf will be permanently disfigured, so we pick off every one that we find curled—a sure sign that it does or has contained an enemy to our Rose buds. Green-fly is also beginning to increase. The simplest remedy for this is to dissolve half an ounce of Gishurst compound in a gallon of boiling water. When cold, we fill a saucer with it and dip the shoots that have green-fly upon them in the liquid, which soon settles the fly. J. C. C.

The outlook among the Briers.—If Roses are not all we could wish, the Briers are. I never remember seeing them so strong and early. With mild weather and suitable buds it may be possible to bud some of them in May. They seem to have profited much by the dripping autumn-tide and mild winter. Anyhow, the breaks may be described as prodigious in strength and numbers. The trade seldom leave more than two buds on a Brier. Amateurs need never leave more than three. If a Rose will not form a good bush from three centres it will hardly do so at all; and it takes so much more time to insert three or more buds on a tree than one or two only. By-the-by, the superiority of the trade Briers to those of amateurs is marked and striking. It almost seems as if they whipped off all the cream and left only sky-blue Briers for amateurs. It would be wise of the latter to buy their Briers where they buy their Roses—from the trade. And as the more Roses amateurs purchase the more they want to bud, neither party would suffer by this arrangement. The number, excep-

tional excellence, and earliness of the Brier is one of the brightest spots in the Rose prospects of the year.—D. T. FISH.

KITCHEN GARDEN.

CHICORY.

ALTHOUGH Chicory is known to be a wholesome and palatable salad, it does not appear to be grown to any great extent in English gardens generally, the milder flavour and more attrac-



Chicory. (One-third natural size.)

tive appearance of Endive causing it to be preferred. It is probable that our forefathers ate more Chicory than we do, for I remember to have seen in a very old gardening work elaborate instructions for its culture; whereas even in Abercrombie's time it could not have been held in much esteem, seeing that he does not even mention it. The French have been wiser in this respect, for although Endive may be said to be extensively cultivated and much more largely consumed in France than with us, being in the true sense of the word popular, Chicory has not been lost sight of; on the contrary, its culture has increased in an equal ratio with that of Endive and other salads, and varieties have been raised, one of which, the large-rooted Chicory of commerce, has given rise to an important industry in the north of France, whilst another, although obtained half a century ago, and largely grown for market around Paris and other large towns, is apparently but little known in this country. It may encourage some to undertake the culture of Chicory to know that it is held in high esteem by the medical fraternity in France, and I was assured by a friend (a chemist in a large way of business) that it is invaluable as a tonic, and invariably forms an ingredient in medicines ordered in cases of debility and impaired

Chicorée sauvage, but when blanched as a winter salad it becomes, owing to a fancied resemblance of the young growth to a man's beard, Barbe de Capucin, whereas Endive is commonly called Chicorée. Those who may object to Chicory on the score of its bitterness will find the improved variety, of which an illustration is here given, more to their liking. This differs from the type in having large, entire, pale green leaves almost devoid of hairs. It also turns in much in the way of Lettuce, and is only slightly bitter.

CULTURE.—This presents no difficulty, but one or two points attending it must be borne in mind if good blanched produce is desired in winter. In the first place sowing must not be attempted much before the middle of May, or there will be a danger of the plants bolting before they have attained anything like half the size and substance which they should do. The best way is to sow in drills 1 ft. apart, thinning out to about 9 in. apart in the rows; the soil should be rich and deeply stirred. The French market gardeners add plenty of old hot-bed manure, and, what is quite as important, the situation should be sunny, as when grown in partial shade the roots lack substance when taken up, and the after produce is not so crisp as it would otherwise be. The Parisian growers believe that heat and rich food, accompanied by abundant moisture at the roots, is absolutely necessary for the summer culture of this esculent.

BLANCHING.—When the roots are taken up on the approach of winter they should be stored away in a shed, or some cool place, where they are easily comestable when needed; but they should be laid in so that they do not dry or lose any portion of their stored-up vitality. Any warm, dark place will do to blanch them in, such as a Mushroom house, or a tub may be half filled with light soil laying the roots therein and covering the top over so as to exclude light, placing them in a warm house. Any such simple expedient will suffice to ensure a supply of blanched heads all through the winter. When, however, first quality and some quantity is required, there is nothing like a mild hotbed. The gentle bottom-heat pushes the young growth along very quickly, and the more rapid progress of the leaves the more tender and delicate they are. A common way of blanching Chicory on the Continent is to make up a hot-bed in the usual way, placing thereon a framework and covering the same with boards, with the addition of straw mats in severe weather.

JOHN CORNHILL.

MUSHROOMS AND THEIR FLAVOUR.

THE inferior quality of Mushrooms got from the London and other markets is doubtless attributable to their long exposure to the drying influences of the shop. Another thing that militates against market Mushrooms is their slow growth out-of-doors under a covering of straw. To be of good quality, Mushrooms require a temperature ranging between 50° and 55°, in which degree of heat they always become juicy and succulent, that is, provided the atmosphere is right as regards moisture, for in that much depends. Snug, close houses or cellars underground, where the air is close, damp, and still, are the places for them, and where these conditions can be secured there is no difficulty whatever in obtaining fine Mushrooms and in any quantity desired. The manure is quite a secondary matter, and it is of little consequence whether there be straw or not with the droppings, but the less these have been washed by being exposed to the rain, the better they are, as rain takes out the ammoniacal salts which they contain. The most suitable manure for forming Mushroom beds is that from horses which have plenty of corn and hay, as it is dryer, and contains vege-

table matter in just the right stage for spawn to run in. In mill tracks or loose boxes in yards where the manure lays and accumulates slowly, and gets into a gentle heat, spawn generates naturally. I have seen layers of such manure full of it. In making up beds the great thing is to have them firm, and as a little friable loam helps to consolidate them when being beaten down, it is useful, and it also assists in moderating and regulating the heat. For spawn to run freely and for Mushrooms to come stout and good, the manure should never get very hot, for if it does its quality is spoiled, as the strength is driven off in steam, and the vegetable fibres to which the spawn attaches itself are burned. A fertile bed under such circumstances is quite out of the question.

S. D.

SPROUTING BROCCOLI.

THIS, being grown both by gardeners and market growers as well as by cottagers, could ill be spared during the winter and spring months, as it survives often when other kinds of Broccoli are killed, and it comes in at a time when other green crops are generally scarce. When well grown and properly attended to, it is one of the most profitable crops one can have. To grow it to perfection, the seed should be sown from April 11 to 20, and in very early places the end of April will be quite early enough. Choose an open piece of ground for the seed bed in order that the young seedlings may grow short and stocky. Sow either in rows 3 in. apart and 1 in. deep, covering the seeds with some fine soil, mixed with soot and lime, or broadcast upon beds 4 ft. wide; sprinkle soot and lime upon their surface, and rake them into the bed before sowing. When the seedlings have two or three leaves, transplant them into a rather poor piece of ground, so that the plants may grow dwarf and compact—the great secret as regards their standing the winter. When large enough to be planted out into their permanent quarters, select an open, sunny position for the plantation, the rows in which should be 2 ft. apart and 18 in. plant from plant, distances at which they will have plenty of room to grow strong, and to fully develop their leaves, and ripen their stems in autumn before the frosts set in. Early in November lay them down with their heads towards the north as thus placed they get thawed gradually, and the frost has little effect on them. Carter's Improved Early Purple Sprouting is much earlier than the ordinary sprouting variety, and it stands the frost equally well. It comes into use in mild winters about the middle of January or early in February, and produces plenty of fine large sprouts. If well grown the centre head will be as large as that of an ordinary purple Cape. When boiled it is of a pale green colour, and quite as tender and melting as an ordinary Broccoli or Cauliflower. Purple Sprouting comes in later and makes a good succession to the Early Sprouting. This variety is hardy and stands the winter well if the stems are ripened in autumn. It will produce plenty of fine sprouts till late in the spring, when there will be abundance of early Cabbages and the first breadth of early Cauliflowers fit for use.

WM. CHRISTISON.

Bromley.

Cucumber growing by express.—I had not the pleasure of reading the origin of the slight difference in opinion between Mr. Fish and "Peregrine" touching Cucumber growing by express, but imagine it arose in a question of temperature. So far from putting this at too high a figure, it is an undoubted fact that Mr. Fish might have gone still higher, and said with perfect truth that the Cucumber will bear for, say, some three hours in the day a temperature of 100° to 110° with perfect safety, so far as its own welfare is concerned and profit to its grower. Circumstances rendered it impossible for me to plant earlier than April 24 this season, and even then the plants were not all that one could desire. For a few days they were kept cool and shaded, but as soon as the foliage told that roots were forming rapidly, a double express system was brought to bear on them. A temperature of 80° was obtained as early



Chicory improved. (One-third natural size.)

appetite. It is also valuable mixed in a dried state with forage. It will thus be seen that in Chicory we not only have a pleasant addition to the salad bowl, but an exceptionally wholesome esculent. I ought, I think, to mention that Chicory, when growing in the open air, is called

as possible, retaining this until about two o'clock, when the ventilators were closed and the glass ran up to 90°, 100°, 110°, and occasionally even higher when the outdoor glass stood high. There is no fear of scalding if a slight shading is retained until the direct rays of the sun have left the house or pit. Let the temperature fall slowly, even to a minimum of 65°, and the plants will be benefited thereby; they will ingather rare vigour during the hours of darkness to renew the light on the coming day.—E. BURRELL, *Claremont*.

Glass cloches.—I find these invaluable for all outdoor propagating purposes and far better than hand-lights. One would not suspect without a trial what a difference they make to the plants. Lettuce sown under the cloches without any other protection whatever are three weeks earlier at least than those sown beside them without protection. I should advise buyers to procure cloches with holes in the tops, however, like a bell-glass, as those without holes get rather hot on sunny days, and are not so easily handled. The latter are best for very early work, however. The cloche is a puzzle as regards ventilation. From the day the seed is sown or the cuttings put in ours are never lifted off except at long intervals to give water; they have no holes, and are set close to the soil, so that any air the plants get must come out of the ground. No moulding or mildewing is observable under such conditions, but all is sweet and clean. Great destruction may, however, happen to the cloches themselves during sharp frosts if their rims are sunk any depth in the ground. On one occasion after a thaw I was very much surprised on lifting some of the cloches to find that about 2 in. of rim remained in the soil perfectly entire, and as cleanly severed as if it had been cut round by a diamond just at the junction with the soil. It was, of course, unequal expansion and contraction that was the cause of the mischief. Since then we have been careful to set them on the surface of the soil.—J. S. W.

To destroy slugs.—When I began gardening as an amateur I was pestered with slugs. I went in for keeping my garden as neat as possible, and picked every weed off as soon as it made its appearance, but I found that while I was picking the weeds as fast as they came, something else was picking the plants just as fast and as thoroughly. The slugs were at work; and when there was nothing on the beds but the plants they soon made a clearance. I was advised to try lime, and I tried it, and for a few days it was effective; but as soon as rain came and it was thoroughly slaked, the slugs marched over it with impunity. I then adopted the following plan: I put some lumps of quicklime, fresh from the kiln, into a barrel of water—say half a bushel of lime or thereabouts—and left it till the effervescence ceased and the water became clear and limpid again, the lime having sunk to the bottom. I gave the young seed beds a good watering with this solution, and the results were as amazing as they were gratifying; the lime water suited my young plants to perfection, helped on their growth, and did for the slugs completely. By day slugs bury themselves in the beds which they lay waste by night, but the lime water follows them into their holes and destroys them. Let your readers who are troubled with slugs try this plan when young seedlings are appearing, and they will not be much troubled with slugs. If their gardens are watered all over a few times in spring, I think it very probable that they will be free from slugs for ever; otherwise it is not a bad plan to let the weeds grow along with the plants till the plants are strong enough to defy the slugs, and then clear the beds. Whether it is that the weeds hide the plants, or the slugs are not particular in their eating, I do not know; but I have seen the plants in neglected beds safe while on clean beds they were cleared off almost as soon as they showed above ground.—J. A. McMULLEN.

Bean flowers and bees (*W. Watson*).—The perforation of tubular flowers by humble bees and hive bees taking advantage thereof is well known; and crops, not only of common Beans, but also of Scarlet Runners, are often seriously injured thereby.

BOOKS.

INSECTS INJURIOUS TO TREES.*

THE United States Entomological Commission have recently published a very valuable report on insects injurious to forest and shade trees. The insects treated of in this report are 1024 in number, and 51 different kinds of trees are mentioned as suffering more or less from them. Not only are the insects enumerated which really injure the trees, but even those whose presence can hardly be felt by them in any way. A volume of 375 pages, devoted to insects which attack trees only, is really appalling, and one notices with much relief that of the entire number but few are inhabitants of this country. Among the most destructive insects alluded to in this work are the grubs of various Longicornes, a family of beetles whose representatives in this country are neither numerous nor common, the boring caterpillars of moths, of which fortunately we have but few examples, and the grubs of beetles belonging to the family Buprestidae, which with us is represented by a few small and mostly rare species. The book is well printed and profusely illustrated.

As before mentioned, the total number of injurious insects dealt with is 1024, belonging to seven different Orders, namely: beetles, saw and gall flies, butterflies and moths, flies, crickets, aphides and scale insects, bugs. The Oak has unfortunately to contend against 214 of these pests, or more correctly 213, as one insect is counted in twice; the Elm, 43; Hickory, 87; Maple, 37; Poplar, 39; Lime, 23; the Sycamore (*Platanus occidentalis*), or what we call the Plane, 9; Pine, 102; Spruce, 24. These numbers, however, are not large when compared with those enumerated by Kaltenbach in his work on the insect enemies of plants; he mentions 537 species as living on the Oak in Central Europe, 107 on the Elm, 396 on Willows, 264 on Poplars, and so on. The Hemlock is said to be more exempt from insects than other coniferous trees. The Spruce Firs in Northern New England were destroyed wholesale from 1878 to 1881 by various boring beetles, particularly a species nearly allied to our Elm bark beetle (*Scolytus destructor*).

Some interesting information is given about the common Longicorn Pine borer (*Monohamus confusor*), which is a very long-lived insect, and this and two other species of the same genus are the most pernicious borers which occur in the Pine timber of New York. On a still summer's night, as well as in the daytime, the peculiar grating or crunching noise which the larva makes in gnawing the wood may be distinctly heard at a distance of 40 yards or 50 yards. One of these beetles, presented to the Peabody Academy, came from a Pine bureau about the year 1875. The bureau had been in the owner's house for about fifteen years previously, being newly made when purchased; the family had heard the creaking noise for some time before the insect appeared. Another case of longevity is mentioned of a beetle belonging to the same family, of which three specimens came out of a leaf of a table made of Apple wood the first twenty, and the last twenty-eight years after the tree had been felled. Another insect with curious habits, and in this case it is the beetle, not the grub which is the offender, is the Hickory twig girdler, which attacks the Hickory, gnawing deep grooves round the shoots and small branches, which causes them to break off in the first wind. A figure is given showing five adjoining twigs

girdled by this insect; the eggs are laid by the beetle above the groove, so that the exterior portion dies and the grubs feed on the dead wood. This beetle is also a Longicorn, and called *Oncideres cingulatus*. Yet another member of this family is the Sugar Maple borer (*Glycibus speciosus*), whose grubs are very injurious to Maples, and in places are said to be gradually destroying them. The remedies recommended for this insect will equally apply to other boring grubs or caterpillars, which are—cutting the grub out, killing it by inserting a stiff wire into the gallery until it is reached, or injecting kerosene oil into the hole; rubbing the trees with soft soap is recommended as a means of preventing the beetles from laying their eggs on them.

The publication of these reports by the United States Government is most useful work, and it must be confessed that our American cousins are far more enlightened in such matters than we are. We have several books on noxious insects which are very good as far as they go, but they are wanting in completeness. Considering the amount of loss to the country annually by the destruction of vegetable produce of all kinds by insects, it is a great pity that we should not have an entomological commission, empowered to carry out experiments in destroying injurious insects, and to publish reports of a similar character to that under notice.

G. S. S.

INCREASING THE DURABILITY OF LABELS, STRAW MATS, AND STAKES.

Now that the question of rendering wooden labels more durable is under discussion, it may be of interest to state that M. Huet, of Boult-sur-Snippe (Marne), claims to have achieved considerable success in this direction. In a communication addressed to the French National Horticultural Society M. Huet writes as follows:—

"Weary of having so often to undertake the manufacture of straw mats and flower sticks, I resolved, in 1878, to subject them to a preparation which had already succeeded well eight years previously in the case of ordinary wood with the result that my straw mats made four years ago, and in constant use from October to May, are scarcely to be distinguished from new. I am convinced that they will never be rendered useless through the material decaying. Peeled nut sticks prepared at the same time, and which have remained in the earth ever since, do not show the slightest signs of decay. I prepare them in the following manner: In a cemented tank containing a solution of sulphate of copper I put the mats, preventing them from floating by means of a lever fixed on the edge of the tank provided with a weight at the other end, and which bears on two pieces of wood placed crosswise on the mats. They are left for about twenty-four hours in the solution, when they are withdrawn, and when half dry they are steeped in lime water. I prepare in the same manner stakes, flower sticks, trellis-work, wood-work for frames, &c. but with this difference that these remain in the solution from eight to fifteen days, according to the dryness and thickness of the wood. For the straw mats, fifty grammes of sulphate to a litre of water will be necessary, doubling the strength for the other materials mentioned. In order to quickly dissolve the sulphate of copper it should be put into a closed wicker basket, keeping it near the surface of the water. As an instance of the duration of wood thus prepared, some stakes fixed in the ground in 1870 are still in a good state of preservation. Similar stakes, but unprepared, last only two years." M. Huet adds that string, straw for thatching, certain kinds of wood for building, and many other things may be similarly prepared, but care must be taken that no nails are in the wood, or they will be promptly dissolved. Wood having received the double preparation of sulphate and lime takes paint very well. It would

* Bulletin No. 7, "Insects Injurious to Forest and Shade Trees." By A. S. Packard, Jun., M.D. Washington Government Printing Office. 1881.

appear that the use of sulphate of copper is, to a certain extent, known amongst the Vine growers of France, but M. Huet claims that the lime water bath is so great an improvement as to render the process of real value and for this reason, that when the sulphate bath alone is used the effect of the dipping soon wears off; whereas the lime, combining with sulphuric acid, disengages insoluble oxide of copper and sulphate of lime but slightly soluble.

J. CORNHILL.

Byfleet.

FLOWER GARDEN.

SINGLE DAHLIAS.

THESE deserve a place in every flower border, either grouped with double flowering sorts or planted by themselves. They flower more freely than the double varieties, and are more graceful in appearance; they also look better in flower-vases, especially the scarlet and white varieties, colours always in demand for decorative purposes. A good stock of plants may easily be secured by obtaining a packet of mixed seed, which germinates freely, and soon produces strong plants, which, if properly treated, will flower in five or six months time. The seed should be sown early in February in order to produce strong plants to flower early in summer; make the soil fine for the reception of the seed. It should consist of turfy loam, leaf-mould, and a small portion of peat and sand, into which the young seedlings will root freely. Sow either in pans or 6-in. pots, using plenty of drainage; sow the seeds thinly, and cover them lightly with fine soil, watering them through a fine-rosed pot. They should be raised in heat, in which they will soon germinate. As soon as the young seedlings have three leaves, pot them singly into 3-in. pots, filled with light ordinary potting soil; replace the plants in the same temperature until they get established, when they may be removed to a lower one; keep them as near the glass as possible, to induce them to grow short-jointed and what is termed stocky. As soon as they have filled their pots with roots, transfer them to 4½-in. pots, placing them in a cold frame, in which they may remain until the end of May, when they may be planted out-of-doors, being careful to harden them well off before they are turned out. Shift into larger pots as soon as they fill those they are in with roots; if kept in small pots, they get starved and are late in flowering.

Distinct colours.—If these are required, the plants must be propagated by means of stock roots placed in a brisk bottom-heat about the middle of February. They soon send up strong shoots, which should be cut off with a heel and placed singly in 3-in. pots filled with light soil; plunge them in a brisk bottom-heat, and as soon as they require shifting, use 4½-in. pots; they like a good compost, which may be formed of turfy loam, leaf-mould, and a good portion of rotten manure, such as that used in making Mushroom beds, and a good sprinkling of coarse silver or river sand. They require to be well hardened off before being planted out; this must be done by removing the sashes during the day and tilting them during the night-time until the plants are safe from late frosts.

Planting out is one of the most important parts of the work; the ground should be deeply trenched and heavily manured. Dahlias, being gross feeders, require plenty of good feeding to bring them to perfection. Sufficient space ought to be left between the plants, if planted in beds, to admit of their being staked and tied. From 3 ft. to 4 ft. apart each way is a distance which will allow them to receive plenty of light and air. Both in single rows and in groups the colours should be properly blended. A grand effect is produced by planting several plants of different colours in groups in shrubberies or mixed borders. Dwarf Dahlias form an effective back row for a wide ribbon border, using plants of different colours alternately. In planting, a pit should be dug and some fresh turfy loam and rotten ma-

nure placed in it, mixing them well with the soil dug out; thus circumstanced, they soon start into growth and require staking. Use stakes according to the height to which the different varieties grow, and tie the shoots to the stakes loosely as often as they require it until they reach their height. When the plants begin to show flower use liquid manure once a week.

Treatment after flowering.—When the stems must be cut off, owing to their having become blackened by frost, leave from 6 in. to 9 in. of stem upon each root; then let them remain a few days in the ground before lifting them. After they are lifted place them in an airy shed or room until they get dry, when they may be stored in any dry place out of the reach of frost; look them over occasionally to see that there are no decayed roots all of which should be cut off with a sharp knife. They keep best when stored in some dry material, such as leaf-mould or burnt wood ashes, in which I have found them to keep fresher and plumper than in any other material. Care must be taken to give newly-purchased plants protection in some way for a few days until they are sufficiently hardened off to withstand the open air. Such plants are often taken out of a warm house or pit, and if placed out-of-doors at once they receive a shock from which they seldom recover, and often lose all their foliage.

Varieties.—The following are kinds which will give satisfaction if well attended to during their early stages of growth, viz., *Lutea*, a fine variety with pure yellow flowers, fine in form, grows about 5 ft. high, and flowers abundantly; *Glabrata*, very floriferous, producing rather small rich lilac flowers; *Cervantesi*, beautiful orange-scarlet with a bright yellow centre; *Alba*, one of the most useful in a cut state, producing abundance of large white flowers; *Paragon*, one of the best, a free flowerer, producing blossoms of a rich plum colour margined with bright magenta, and furnished with a bright yellow eye; *Coccinea*, one of the oldest known species, producing finely-shaped flowers of a bright orange-scarlet; *White Queen*, a fine white sort with large flowers of good substance, one of the most desirable whites we have.

WM. CHRISTISON.

The Roekery, Bromley Common.

***Pæonia tenuifolia* fl.-pl.**—What a handsome flower this is when well grown! The long and finely cut leaves and fine bright flowers offer a complete contrast to the usual race of *Pæonies*—not better, perhaps, in flower, but quite distinct, and extremely graceful as regards foliage. A very fine bloom was brought to us by Mr. Stevens the other day, the plant growing well on his free sandy soil. It is one of the finest hardy perennials we have.—V.

***Cheiranthus* 'Dilleni.'**—This is a Wallflower, but a Wallflower of a peculiarly distinct tone of colour—a kind of coppery buff, delicately scented, and spreading into very wide handsome tufts on a dry bank, or on the rock garden. We have lately seen several 3 ft. across, and been much impressed with their fine and novel effect. It is a plant wholly distinct from the common Wallflower, much dwarfer, and actually more free and vigorous in its bushy nature.—Q.

Arenaria balearica.—It is impossible to praise too highly the beauty of this South European Sandwort, with its little starry flowers and growth, which is more compact than that of *Thyme*—more compact, in fact, than many *Mosses*. Its way is to grow almost anywhere it is planted, and to spread over rocks, rooting on them as a *Moss* would, whether they are dry or moist, but preferring those that are moist and somewhat shady. For weeks past it has been charming to see it in rock gardens or rock ferneries, where it has the chance of running about.—R.

Gentiana verna.—This well-known alpine flower is now found, as we have often said it would be, easy to cultivate, doing very well indeed in any moist soil where thoroughly exposed to the sun, and not encroached upon by coarse

neighbours. Its place is the rock garden, but it is not necessary to have a rock garden to grow it well. Anybody with a little artificial bog, kept free from the rampant plants that sometimes get into bogs, or in beds kept moist, can grow it well. Its tufts for the last few weeks have been charming to see in gardens where it is grown, and these, we are glad to see, are now many.

Lathyrus splendens.—I am not sure that I am right about the name of this Pea, but it is the name I had with the plant. A root I got from a friend was planted out among the shrubs here some years since, and looked so effective climbing over the *Rhododendrons* and flowering freely in July and August, that I ordered a lot more of it for similar purposes, sending a flower as an example. It grows about 5 ft. high and produces a profusion of erect flower-spikes of a bright pink hue, and is very effective among shrubs when these have for the most part given over flowering for the season. It is excellent for cutting, too, and I think it cannot be planted too extensively in the wild garden and among trees and shrubs, to which it readily attaches itself. It seems to be easily established, and succeeds in any common soil. I should be glad to hear the history of it.—CHRF.

Forget-me-nots in Grass.—One of the most effective plants on the Grass margins here at present is the Forget-me-not. It seems to thrive uncommonly well among the Grass, and the situation seems more natural to it than any other. Having a large quantity last autumn from seed sown outdoors, some thousands of plants were stuck in up and down the grounds, and they have been in flower for a long while, and are just now coming to their best. They are most effective, for the blue of the Forget-me-not beats, I think, all other blues. It should be sown thickly. *M. sylvatica* sows itself in the borders here, but it remains to be seen if it will do so in the Grass; I hope it will. Tulips of many colours are growing up through it, and *Primroses*, and other things, for the latter, especially the wild one, are in bloom yet, and it is early for us. I mean trying the *Arabis* and *Iberis corifolia* along with the *Myosotis*, &c., and have little doubt they will do well. We have some thousands of cuttings of the *Iberis* and other things coming on under cloches just now for that purpose.—J. S. W.

Iris susiana.—This, the prince of Irises, is generally considered somewhat difficult to grow, and still more difficult to flower satisfactorily. It is, therefore, I think, worth recording that a neighbour of mine has it flowering well and strongly, planted in common soil—the stiff cold soil of mid-Kent—and without having bestowed the smallest care or attention upon the plants, which have been in the ground for the last three months. The tubers are planted on the south side of the house, which has been the only protection they have received. By the way, I wonder if there are any readers of THE GARDEN who have succeeded in establishing (on the rockery or elsewhere), and likewise flowering, the *I. iberica*. The general directions for the cultivation of this plant is to keep it absolutely without water for some six months (January to July is, I believe, the time), which, of course, greatly destroys its interest and value as a garden plant. I have myself known it flowered without care or protection in the open, but the plant has since disappeared. Any information or experience on this point would be interesting.—J. G. L.

The red, white, and blue Wood Hyacinths.—The cultivated forms of these are attractive border plants just now, the pink and white varieties in particular, and especially the last, which is a *Hyacinthus candicans* in miniature. Good plants on the border here are not surpassed by any other herbaceous subject. The flowers are large and numerous and pure white, the bells measuring nearly an inch across when fully expanded and the spikes are produced in such masses as to render the plant very conspicuous. It succeeds alike on the border, the Grass, or on the rockery. The pink kind is almost a *fac-simile* of the white kind except in colour. Neither appear to be

commonly grown, for I seldom meet with them from home. I do not know how the plant would force, but if it will succeed in that way I am sure it would beat the Roman Hyacinth, for it is far superior to it. Neither the white nor the red kind can be too extensively planted. All the varieties do well in cool and rather heavy soils. In the woods here where the soil is damp and rather clayey the ground is a sheet of azure at present as far as the eye can reach. For succeeding the Tulips, Daffodils, and Polyanthus, &c., the Hyacinth must be reckoned one of our best plants.—J. S. W.

LATE-FLOWERING SCILLAS.

THE cultivated species of hardy Scillas, numbering about a dozen, are conveniently divided into two groups, viz., the early kinds, such as *S. sibirica* and *bifolia*, and the late sorts, such as *S. nonscripta* (*S. nutans*), *S. campanulata*, and *S. peruviana*. These two sets of species, though widely separated from each other as regards season of flowering, are, nevertheless, connected, as it were, by the charming little *S. amena* and two or three others which flower just after *S. sibirica* is past, and continue in beauty till the first flowers of the Spanish Squill expand. *S. amena* is a charming plant that may safely be

associates is the pale green boss which exists in the centre of each flower, and which is discernible even from a distance. We have never seen it so fine as we saw it this year in a particularly shaded part of a garden, in the shape of a patch a yard or more square, growing in light, rich soil, and one compact, glowing mass of colour.

After *S. amena* comes the Spanish Squill, *S. hispanica* (or *S. campanulata*, as it is oftener called) and the common Bluebell of our shady woods, *S. nonscripta*, called also *S. nutans*. The types of these species are too familiar with most people to need any description, but some of the beautiful varieties of both species need to be better known, ranking as they do amongst the most beautiful of early summer flowers. *S. hispanica*, the kind with the open bell-like flowers, sports into numerous colours. The finest named sorts are Emperor, a variety with very large spikes of flowers of a delicate porcelain tint; Empress, similar in size, but white lined with blue; atro-cerulea, very deep blue; major alba and rosea, two fine varieties, one pure white, the other a delicate rose; aperta major, light blue; and minor, pale blue. These are all distinct and beautiful, and vary a little in the

S. nonscripta, or *S. nutans*, is so common that it is scarcely necessary to cultivate it, but some of the varieties are distinct and beautiful enough for any garden. They number about a dozen, that is, including the Portuguese variety, *S.*



Scilla amena.



Scilla patula.

recommended to the notice of everyone, being distinct from all others. It is dwarf and tufted in growth, and for two or three weeks in April literally covered with large, showy blossoms of a rich Tyrian purple. One character above all others which singles out this species from its

period of flowering, some expanding quite a week earlier than others. All are strong growers in almost any soil, but they have a preference for a light soil rich in decayed vegetable mould, and a position sheltered and partially shaded, though they do well in the open border.

cernua, which has reddish lilac blossoms, and *S. patula*, which is intermediate in size between *S. hispanica* and *S. nonscripta*. Of *S. patula* there is a pure white flowered kind (*alba*), a dark blue (*atro-cerulea*), a pale blue (*cœrulea*), a rose (*rosea*), one earlier than the others, called *præcox*, and one larger, *grandiflora*. These are all sufficiently distinct to justify separate names. *Grandiflora* has deep blue-white and rose coloured flowers; *carnea*, flesh coloured; *alba*, pure white; *rosea*, rose; and, like the Spanish Squill, the forms of *S. nonscripta* are valuable border flowers, and particularly suitable for naturalising near woodland walks and in semi-wild places and, in fact, anywhere where the common Bluebell thrives. The finest collection of these plants that with which we are acquainted is in Messrs. Barr & Sugden's trial grounds at Tooting, from which the above notes were taken.

W. G.

Pansies.—I have been requested to forward you the enclosed Pansies, as we have not seen any like them before; you will, therefore, oblige us by stating in THE GARDEN what you think of them. I know their form is not that which would please a florist, but I think the colour is good.—G. CARPENTER, *Walton-on-Thames*. [The colour—a warm rich brown with a considerable amount of velvety black round a bright yellow eye—is certainly uncommon; but we think if you sent a bloom to Messrs. Dicksons & Co., Waterloo Place, Edinburgh, they would probably be able to match it.]

SHORT NOTES—FLOWER.

Dianthus neglectus.—I have tried to grow this several times; but after flowering the first year, the plants have begun to go back, and at last have died. Can anyone give me a hint as to its cultivation?—J. C. C.

Eremurus Olgae.—Allow me to corroborate Mr. Gumbleton's statement about this species; it is a very stately pure white flowered plant somewhat in the way of *E. himalaicus*. It was introduced about five years ago by Dr. Regel.—MAX LEICHTLIN, *Baden-Baden*.

Cannas.—Kindly oblige me by giving in THE GARDEN the names of a few good Cannas.—ALPHA. [Annui, bicolor, Bihorelli splendens, compacta elegantissima, dentata, expansa, grandis, limbata, discolor, Sellowi, variabilis, and subulata rosea. These are mostly old sorts, and have been well tried.]

SEASONABLE WORK.

LOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

AN important table bouquet is composed of the large single white Columbine and Florentine Iris, both cut from 2 ft. to 3 ft. long, with double Poet's Narcissus and Solomon's Seal; another of Oriental Poppies with leaves of orange Day Lily. These large flowers absorb a considerable quantity of water, and we have given up the use of the old trumpet glasses, that held very little, in favour of capacious shapes that hold from two to three quarts. A large bunch of Tea Rose Rubens comes from a south wall, and another of yellow and white Roses, *Maréchal Niel*, *Lamarque*, and *Céline Forestier*. A slender glass holds *Narcissus gracilis*, one of the latest and loveliest of the *Daffodils*. An Austrian Copper Brier is arranged in a low silver-gilt cup with small twigs of Sweet Brier. A broad, shallow bowl of white china is filled with some of the earlier blooming *Clematis*, white and lilac, with foliage of dark-leaved Ivy. A jar of brown pottery has a bunch of Globe flowers, yellow and orange; the latter is the splendid *Trollius japonicus*. A long dinner table is decorated with three bowls of herbaceous *Pæonies*, red and pink, the colours grouped together in each bowl, the centre bowl rather largest. Pots of Musk now in use for sitting-rooms are grown in the green glazed pots commonly used in France and Switzerland.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Funkias.—There are but few fine-foliaged plants, even among the tender section of bedders, that excel in effectiveness several of the varieties of Funkia. No wonder, therefore, that when a few years ago foliage summer bedding came into vogue they were in request, but not nearly to that extent which their easy culture, hardiness, and general adaptability to foliage gardening would warrant—recommendations that will be confirmed by all who have seen the magnificent bed of the variety *Sieboldi* in Hyde Park during the past two or three summers, or the marginal lines of the same in Battersea Park. *Sieboldi* and *Sieboldi variegata* are the strongest growers, and are the best kinds for forming large clumps or beds. The varieties *albo-marginata*, *ovata elegans*, and subcordata are excellent for edging beds of tall sub-tropicals, and for planting, either singly or in groups of three, in mixed herbaceous borders. All the kinds are readily propagated by division in early spring, and should be planted in deeply trenched and well manured soil. Annual transplanting should never be thought of, for their full beauty, both as to foliage and flowers, is not developed for at least a couple of years after planting.

Summer bedding.—All kinds of summer-bedding plants may now be planted with safety; of course the most tender should be left till all the hardier kinds are finished. Moreover, as few tender kinds should be used as circumstances admit of, for even our longest and most favourable summers are far too short to repay the labour and anxiety connected with this branch of gardening; and, as we have no control over the seasons, it is only by a freer use of hardy plants that we can hope for a lengthened period of beauty. This is a busy time in all departments of a garden, and in our anxiety to get over the work quickly, there is some danger of its being done carelessly, because hurriedly; an evil that will be avoided, if it is remembered that unless the soil be well firmed round the roots, they will be a long time in starting into growth, and will thus be the cause of far more anxiety than would have been the case if treble the time had been expended in first planting them. Another certain way of contributing to expeditious effectiveness is, to mulch the beds as soon as planted with Cocoa-nut fibre. The labour of applying this is saved by there being

less watering needed, and, what is of greater importance in most gardens, neatness is at once assured. The moment planting is done and the attendant litter cleared up, those plants that require such attention should be tied to supports; groundwork plants should be pegged down, and the edgings—Box and Grass—should be neatly trimmed. Where the mulching just recommended is not practicable, the next best substitute is to keep the surface soil well stirred, and particularly after heavy rain.

General work.—In showery weather complete the planting out of Asters, Stocks, Zinnias, *Phlox Drummondii*, and all other kinds of summer-flowering annuals and biennials. A good way to plant them is in shallow drills; by this means they are not only more easily watered, but the drills being levelled in as soon as the plants have got well established, form a mulching which is at once a protection from draught and a safeguard from injury through friction by wind. Of course this drill mode of planting is recommended on the supposition that beds of such plants are in request, as obviously the plan could not be adopted when they have to be planted out in clumps amongst Roses or in mixed flower borders; even then, however, deeper planting than is usual will be found to be advantageous. Roses, now need much attention to keep down fly; syringing with clear water is about as good a remedy as anything. There are, this season, many malformed and green-hearted buds showing, and all such ought to be cut off at once. Clip Box, Ivy, *Kuonyx* and other shrub edgings; and Grass verges and edgings ought to be cut once a week. In dry weather hoe amongst shrubs, and keep recently planted ones thickly mulched. Weed the rockery and hardy Fernery; Couch Grass and the common Bracken at this season soon overrun the Ferns, so do also the stronger-growing rock plants their less robust neighbours, unless timely curtailment of growth be practised. Seed-stems should be cut off *Arabis*, *Saxifragas*, *Myosotis*, and any others that have done flowering. *Lilacs* also, should have their old flowers cut off and be pruned into shape before they make new growth. *Rhododendrons* and *Azaleas* ought likewise to be cleared of their old flowers, both for the sake of neatness, and also for the welfare of the plants.

ROSE GARDEN.

W. H. FRETTINGHAM, BEESTON.

Roses having had no rest during the past mild winter have been naturally very forward, and, as was anticipated, received a severe check during the past three weeks, especially from the gale, the result being that the young shoots looked as if boiled or scorched. Good early blooms are gone, and, as some have predicted, also Rose shows in May. Grubs, aphides, and Rose beetles are plentiful, and are busy destroying the new growth. The beetle, though known to us in this neighbourhood for some twelve or fifteen years, has not been noticed by many who contribute to THE GARDEN. Canon Hole, however, in his book on Roses mentions it. In the daytime it shelters itself in the ground, as if the light of the sun was more than it could endure, but it rises as soon as darkness sets in and drills out every available eye on Rose or stock in the night. It is about the size of an ordinary house fly, in colour like that of mother earth, and so destructive is it, that whole quarters of dormant eyes and standard Brier stocks have been completely ruined by it in a few nights. Taking a trip last June into Lincolnshire, and calling on a well-known nurseryman in that county, I noticed that none of his Briers had broken into growth, although green looking in the stock; he was himself at a loss to account for the fact, but on close examination I soon discovered the cause; and having pointed out to him that it was the work of the Rose beetle, he confessed, although in business all his life, he had never noticed it before. Cases of its destructiveness in private gardens are also not uncommon. The only remedy is to take a light and pick the beetles off at night and destroy them; if this be followed up for a few nights,

both Roses and stocks may be saved. Grubs may be picked off in the daytime; green-fly syringed with any good insecticide or brushed carefully off, the former being the most effective method. Cut-backs may be thinned out where the shoots are too plentiful, thereby concentrating all the strength in the most reliable shoots. Where Roses are forward enough, disbudding may be proceeded with.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Melons.—When the fruit in the early house has attained its full size, feeding must be discontinued; but watering with pure water to prevent the plants from suffering may go on until the Melons change for ripening, when a dry, warm atmosphere, with a constant circulation of air, will greatly improve the flavour of the fruit. If the pot system of growing throughout the season is adopted, the young plants intended to succeed the first batch must be kept constantly growing until they get established in the fruiting pots, otherwise they will become infested with spider, and most likely lose their stem-leaves long before the fruit is ready to draw upon their valuable assistance. One of the great advantages derived from pot culture is the facility which it offers for overlapping the succeeding sets of plants, as the latter, established in fruiting pots, and 2 ft. to 4 ft. high, can be moved from the succession to the fruiting house with safety, when bottom-heat and all other conditions being favourable they will commence throwing out female blossoms by the time the last fruit of the preceding crop has been used. Plants now swelling off fruit must be well fed and syringed every afternoon, and they must be closely divested of all lateral growths as they appear. Board the Melons before they begin by their weight to strain the Vines. Pay great attention to the old foliage, which should now be as firm as a board, and carefully sponge for the destruction of insects, as Melons are so easily checked and ruined by the use of insecticides. Never neglect plants in pits and frames, as the loss of a single day may lead to the loss of a fine set of fruit. Keep the laterals thin and well up to the light, fertilise every flower when the atmosphere of the frame is dry, renovate linings back and front alternately, and follow up covering with mats at night.

Strawberries.—These will now be reduced to the late kinds usually potted in the largest sized pots and grown on in pits and frames, to fill up the period which intervenes between house forced fruit and the earliest from the open borders, and it not unfrequently happens that this batch under good management gives the most acceptable and certainly the most enjoyable crop of the season. As light and air, full exposure to sun, and plenty of water are the first elements of success, the lights may be thrown off the pits on fine days and replaced early in the afternoon with good syringing and feeding to swell the fruit under the influence of solar heat alone. To economise time in watering it is a good plan to half plunge the pots in leaf mould before they throw up their trusses, and to leave them undisturbed until the fruit is ripe; they then have time to send out an abundance of feeders, and commence a luxuriant abandoned state of growth by the time the fruit begins to swell. To an experienced eye the breaking loose of imprisoned roots can be measured to the day, and so important is the aid thus obtained that amateurs and professionals, whose time is heavily taxed, allow them to go, notwithstanding the fact that they condemn the system as bad. Maiden plants from which the stock of runners is to be obtained will require good mulching and watering to keep them progressing through dry, parching weather; and where it is the practice to turn out forced plants, the balls should be well soaked in tubs of water before, and heavily mulched after they are planted. Under the best of management the system is not a good one, as the plants fill a garden with red spider in dry seasons, and the fruit is never equal to that obtained from maiden plants.

SOCIETIES.

CRYSTAL PALACE.
MAY 20.

A CONSIDERABLE falling off in the number of exhibits was noticeable at the annual summer show here, on Saturday last, though, on the whole, there was a fair display. Large quantities of the exhibits were the same as those shown at Regent's Park a few days previous, though here they were not shown to such advantage as they were there, owing to their being arranged on long formal benches. The neighbourhood of the Crystal Palace abounds in good suburban gardens, and from these came the greater part of the exhibits.

Azaleas made the greatest display; they were placed in the central transept. There were, however, but two or three collections out of the dozen shown that were noteworthy, one or two being decidedly below mediocrity. The group of nine plants from Mrs. Torr's garden, at Ewell, was grand in the extreme, each being a huge homogeneous mass, cone-like in shape; the varieties *Iveryana*, *Criterion*, *Coccinea*, *Magnet*, and *Juliana* were particularly fine, and won many admirers. A somewhat smaller group from Mr. Thornton's gardener was likewise good, but we noticed that this collection contained two plants of the variety *Reine de Pays Bas*, which is contrary to the rules of the schedule, wherein it is stipulated that the kinds are to be distinct. The collection in the class for six plants, also, from Mr. Ratty, was good, containing huge masses of such sorts as *Criterion*, *Magnet*, *Juliana*, *Trotteriana*, and that fine semi-double *Souvenir du Prince Albert*. The only other *Azaleas* calling for special comment were those in the collection of a dozen-and-a-half of plants in 9-in. pots from Mr. Turner, Slough. Unlike the large specimens of the older kinds, these vigorous young plants represented for the most part the newer sorts, and that to perfection, the flowers being large and full, and the colours bright and fresh. The following are a few which are singled out as the best, viz., *Baron de Vriere* and *Mad. Marie Lefebvre*, two lovely white varieties, both with large flowers, the former with crisped petals; *Grandis*, orange-red very fine; *Comtesse de Flandre*, clear rose; *Charmer*, bright amaranth; *Mons. Thibaut*, orange-red; *Mrs. Turner*, bright pink, edged with white, spotted with purplish-crimson, particularly fine; *Apollo*, a good white striped with carmine; *Jessie Vercoe*, deep salmon pink; *Eugene Mazel* and *Souvenir de M. R. Abel*. These are all beautiful varieties, and form a representative selection as regards colour. The plants shown all ranged from 14 ft. to 24 ft. high, and were trained in a conical shape. In the collection of eighteen plants from the Norbury Nursery there were also some good varieties.

Stove and greenhouse plants were not very numerous. In the best collection of nine which came from a neighbouring garden (Mrs. Tredwell, Lower Norwood), the most noteworthy specimens were *Euparis Eclipse*, a huge symmetrical bush completely covered with its elegant and beautifully coloured blossoms; *Erica Cavendishi*, likewise a large bush; *E. ventricosa coccinea* minor, the perfection of what a well-grown *Heath* should be; *Azalea Murrayana* and *Roi Leopold*, both grand plants; *Clerodendron Balfourii*, and *Statice profusa*. Not much inferior was the group from Hawkesyard Park, Eugeley, particularly having regard to the long journey such large plants had to overcome. It contained a grand plant of *Hedera tomentosa*; *Ixora coccinea* and *Williamsi*; a well-flowered *Erica Cavendishi*; a couple of fine *Aphelexis* and *Dracophyllum gracile*. In the nurserymen's class were two collections, that from Messrs. Peed, Norbury Nursery, Streatham, being the best, containing, as it did, amongst others, fine specimens of *Hedera tomentosa*; *Erica Cavendishi*, and *Anthurium Scherzerianum*. The other group from Mr. James, a good one, contained a fine plant of the new *Anthurium Andreanum*, with five large spathes, and two plants of *A. Scherzerianum*, which, according to the conditions of the schedule, is allowable. The circumstance was, however, over-

looked by the judges, though on what grounds we are unable to say. Why is it that exhibitors think it right to enwrap the flower stalks of the *Anthurium Scherzerianum* in cotton wool? It certainly cannot be for the purpose of improving their appearance. The spathes are not so tender as the flowers of many *Orchids*, which never appear before the public in their travelling dress. In this exhibition there were several plants of this *Aroid* shown, but only one free from wadding wrappings.

Fine-foliated plants were numerous, owing to provision having been made for special collections of such things as *Dracenas*, *Crotons*, &c., which at most other metropolitan shows are included in collections. In the class for nine plants the collection from Handerson Park that was so prominent at the Regent's Park show was also the finest here, having, in addition to the half-dozen shown last week, grand plants of *Pritchardia pacifica*, a noble *Palm* when well grown, *Anthurium crystallinum*, and *Croton multicolor*. The second collection from Canon Bridge's garden, Beddington, contained smaller but never plants; for instance, there were fine specimens of *Carludovica Drudei*, a *Palm-like* plant not much known yet but very handsome; *Anthurium regale*, a noble *Aroid*; and *Aralia monstrosa*, a fine variegated-leaved shrub. In the third group, from Mr. James, a grand plant of *Stevensonia grandifolia* was prominent; also a handsome example of *Macrorhiza Denisoni*. *Dracenas* were shown well, there being four collections of nine plants. The best from Mr. Causton included plants with highly-coloured foliage of *Cantrelli*, *Tellingi*, *Gladdeslei*, *Salmonia*, *amabilis*, *voluta*, *Bausei*, and *Witzcheni*, and *terminalis alba*. These have for the most part, had their origin in the Anerley Nursery, and represent some of the finest of Mr. Bause's hybrids, all being characterised by highly-coloured foliage, vigorous habit, and graceful growth. In the other collection were such beautiful kinds as *vivicans*, *superba*, *Thompsoni*, *Mossana*, *pulcherrima*, *Baptisti*, and *Cooperi*, the latter still one of the best. The distinct *D. Goldieana*, with its golden-striped foliage, was shown well, likewise *D. Lindenii*, with golden-striped leaves—a good plant, the best we have seen, came from Canon Bridge's, Beddington. There were three collections of nine *Crotons*, and there was but little difference in the groups shown by Mr. Bird and Mr. Rann, except that that from Mr. Bird comprised plants of more uniform size, and perhaps of higher colour than those from Mr. Rann. A more representative nine could not have been selected. They consisted of *Williamsi*, *volutus*, *Morti*, *Andreanus*, *undulatus*, *Disraeli*, *Weismanni*, *pictus*, and *Evanianus*, which represented the various types well. The plants were not large, but well coloured and indicated robust health. In Mr. Rann's group were *Youngi*, *undulatus*, *Prince of Wales*, all fine specimens, the latter particularly so; *Princess*, *Challenger*, *albicans*, *picturatus*, and *chrysophyllus*, *Queen Victoria*, and *Earl of Derby*, both fine sorts, were also in the other collection.

Ferns were not remarkable, there being but two collections, the finest including large specimens of *Adiantum Williamsii*, *Davallia polyantha* (divaricata), very fine; *D. fijiensis*, *Microlepia anthriscifolia*, and *Cibotium Schiedei*, all excellent and beautiful *Ferns*, especially for exhibition. A fine plant of *Blechnum braziliense* was included in the other group, likewise of *Gymnogramma chrysophylla*.

Orchids were poorly shown, at least so far as regards numbers, there being but one exhibition in each of the classes set apart for nurserymen and amateurs. The amateurs collection came from Mr. Southgate's garden at Streatham, whose gardener, Mr. Salter, had a very effective group of nine plants, the most conspicuous being a fine mass of *Cattleya Mossie*, with twenty blossoms; *Masdevallia Lindenii*, and a pink form called *pallida*; *M. ignea*; a beautiful basketful of *Oncidium concolor*, with its clear golden-yellow racemes of blossoms; *O. Marshalli* and *Cypripedium barbatum* were likewise well shown. Mr. James, of the Castle Nursery, Lower Norwood, showed the other collection, the

finest plants in which were *Odontoglossum crispum*, a mass of several fine varieties; *Cattleya Mendellii*, *Masdevallia Veitchii* and *Lindenii*, *Cypripedium barbatum*, and a very fine panful of the white *C. niveum*.

Miscellaneous exhibits were not numerous, but added much to the attractiveness of the show. A large collection of hardy and alpine plants from Messrs. Carter & Co., High Holborn, seemed to be a particular attraction for the visitors, who crowded round it throughout the day. The group, which occupied the whole of one end of the central stage, contained many a familiar flower which the general public could recognise, besides numerous others less known. A large collection from the Swanley Nursery of *Pelargoniums* and other flowers, edged with Maiden-hair *Fern-like* plants of *Thalictrum adiantoides*, and *Nertera depressa* was also an attraction; likewise a large collection of *Pansies* from Mr. Hooper, Bath, who shows these favourite flowers so finely. Messrs. Hooper & Co., Covent Garden, sent a large collection of *Tree Paeonies*, which made a bright display, as did also a collection of *Pyrrethrum* from Messrs. Kelway.

Among other exhibits were two collections of *Clematis*, one from Messrs. Jackman, Woking, the other from Messrs. Smith, Worcester, but as these were particularly alluded to in our report of the Regent's Park Show, we will pass them by, except to mention that fine as they were they did not look so beautiful here as on the turf banks in the Regent's Park tent. *Calceolarias* were rather numerous, and on the whole very fine. Only one collection of tuberous *Begonias* was shown, and that was not very remarkable though it contained a good plant or two, one particularly of *Paul Masurel*. Mr. Turner, of Slough, showed his beautiful collection of dwarf pot *Roses* which won so much admiration last week at Regent's Park, and the same exhibitor also showed the best nine *Pelargoniums*, which, though very large, were beautiful, especially such varieties as the brilliant *Iluminator*, *Lady Isabel*, *Quadron*, *Claribel*, *Digby Grand*, and *Captain Raikes*, one of the brightest and best of the *Rose* type. Two other groups of show *Pelargoniums* were shown but were not remarkable, but a bright collection of *fancies*, also from Slough, was quite up to the usual standard of excellence of exhibits from Mr. Turner. The prize for the best arranged group of plants, on a space of from 150 sq. ft. to 200 sq. ft. was awarded to Messrs. Laing & Co., Stanstead Park Nursery, Forest Hill, who made a most effective group in a spacious tent lighted by the Standard Electric Light Company. The group consisted of large and graceful *Palms*, *Ferns*, *Crotons*, and *Dracenas*, here and there lighted up by a flowering bush of *Azalea*, or the brilliant hues of tuberous *Begonias*. The effect of the group by the electric light was very fine, showing the beautiful characters of the plants to great advantage.

New plants.—The principal exhibitors of these were Messrs. Laing, who had a group of new *Begonias*, *Caladiums*, &c., the following, among which received first-class certificates: *Caladium albo-luteum*, *Ibis Rose*, *Mad. Majolin Schefferi*; *Pelargonium*, Mrs. Miller (a beautiful new silver tricolor); *Begonia*, Arthur G. Soames, and *Marquis of Bute*, and *Asparagus plumosus nanus*, all of which, as well as the others, have previously been described in our columns. Mr. Hooper, Bath, received a first-class certificate for *Viola Mrs. Laing*, and Messrs. Kelway, Langport, for *Scopolopendrium vulgare densum*.

ROYAL HORTICULTURAL
GREAT SUMMER SHOW.

BOTH as regards extent and high quality the exhibits at this show, which opened on Tuesday last, were not equal to those at corresponding exhibitions that have taken place during recent years at South Kensington. The main cause of this no doubt is the fact that three days, the period during which the show was held, is considered by exhibitors to be too long in early sum-

mer to risk valuable plants under canvas, and until the length of time is curtailed the society cannot expect to have a representative show, which that held this week certainly was not. The large London nurseries, such as those at Chelsea and Upper Holloway were scarcely represented. In some of the other departments, too, particularly the Orchids, there was a remarkable falling off; the finest Orchid collections being only conspicuous by their absence. Moreover, the show lacked compactness, there being a good deal too much room provided for the exhibits under canvas; therefore, the large tent was rather scantily filled, and consequently recourse had to be had to Chiswick in order to make the show more complete. The main features in the large tent were the magnificent groups of Roses from the Cheshunt and Slough nurseries, which occupied the banks at either end, and positions which showed the plants off to perfection. Two of the ornars were devoted to groups of plants arranged for effect while, on the undulating banks around the margin and in the centre were the stove and greenhouse plants, Azaleas, and fine-foliated plants. The long tent connecting the council room with the large tent was very gay; it contained Pelargoniums and Orchids which, however, would have been shown off with much better advantage on the undulating banks in the big tent than on a formal stage with the white canvas for a sky line against which the delicate colours of the different kinds were not seen to the best advantage. The long tent also contained the hardy flowers, of which there was fine display; the fruits and vegetables; and, at the entrance, an extensive and tastefully arranged group of miscellaneous plants from the Society's garden at Chiswick. The large permanent exhibition of horticultural structures, implements, &c., in the grounds added, much to the importance of the exhibition.

Roses.—Without the magnificent groups of Roses, the show would have been shorn of much of its attractiveness; they were not only numerous, but as fine as the most skilful cultivation could make them. It would be difficult to say which showed the Rose to the greatest perfection, Messrs. Paul or Mr. Turner, both collections were so marvelously fine. Messrs. Paul had, however, the largest plants, and to them the highest award was given. The group included a specimen of the yellow Celine Forester, fully 7 ft. across and well flowered, Charles Lawson and Madame Victor Verdier some 6 ft. across; but little smaller, too, were plants of La France, Beauty of Waltham, Victor Verdier, Mad. Margottin, Souvenir d'un Ami, and the old centifolia. The corresponding group from Slough consisted of perfect models of what pot Roses should be; they were not very large, but bright looking and in the best of health. The central and most prominent plant in this group was a wonderfully fine La France, about 5 ft. across, as good at the back almost as in front. Others consisting of Edouard Morren, J. S. Mills, Therese Levet, Camille Bernardin, Sir G. Wolsley, Mad. Victor Verdier, Mad. Lacharme, and Marquise de Castellane. There was but one collection in the class for twenty plants in 10-in. pots. This also was from Cheshunt. Prominent amongst the varieties which it contained were Cheshunt Hybrid (a small plant having a score of fully expanded blooms representing this beautiful Rose finely), La France, Camille Bernardin, François Michelon, Mrs. Laxton (a splendid dark variety), Avocat Duivier, Perfection de Montplaisir, President, and Mdm. de Montcheaniveau. Surrounding Mr. Turner's fine group of nine specimens, at the opposite end of the tent, was an uncommonly good collection of small plants, mostly in 10-in. pots and admirably flowered, the most conspicuous being Egeria, J. Bright, Royal Standard (three fine English-raised Roses), Mons. E. Y. Teas, Marie Baumann, Edouard Morren, Duchesse de Valombrosa, and Avocat Duivier. There were two classes provided for amateurs, but only two collections of six were shown, neither of which was very remarkable for high quality, the second best being the best flowered.

Stove and greenhouse plants.—In neither of the three classes set apart for these was there a strong competition; indeed, this department of the show has seldom been so scantily represented. As in the case of the other metropolitan exhibitions this year the amateurs were to the fore, a really fine dozen being shown by Mr. Tudgey in the open class. Amongst them were huge specimens of Erica Cavendishi, Pimelea decussata, Dracophyllum gracile, Clerodendron Balfouri, all superbly flowered; also grand globular bushes of the white Azalea magnifica, and of A. Criterion; smaller plants of two varieties of Erica ventricosa, named magnifica and coccinea minor; Franciscea confertiflora, Aphelexis macrantha purpurea, a fine Anthurium Scherzerianum, a plant of A. Andreanum with a couple of spathes. The same exhibitor also showed the best eight, amongst which B. Cavendishi, Clerodendron Balfouri, Erica ventricosa magnifica, Dracophyllum gracile, were especially remarkable for large size and trim appearance. A good plant of Anthurium Scherzerianum Wardi, the finest of all the varieties of the Flamingo flower, was also shown by Mr. Tudgey. Other noteworthy plants in the open class were Acrophyllym venosum, Erica Cavendishi, Anthurium Scherzerianum (a grand plant, with about fifty spathes), Allamanda grandiflora, all in the collection from the Norbury Nurseries. Messrs. Jackson's plants were not at all up to their usual standard of excellence, being somewhat small and below the average, a circumstance accounted for by the fact that they had disposed of their large specimens. The two other amateur's groups, from Garbrand Hall and Handcross Park, contained a few grand examples, but high quality did not run through the whole collections. Two huge Heaths, Erica Cavendishi and depressa, were notable in Mr. Child's group, as were also two or three finely-flowered Azaleas. In the nurserymen's class for eight plants, Messrs. Jackson had an excellent group of small but very healthy and well-flowered plants, Pimelea mirabilis, Clerodendron Balfouri, and two or three Azaleas being especially fine. There was nothing remarkable about the other collection, except a good plant of Anthurium Andreanum with five spathes, from Mr. James, who has shown the finest examples of this new Aroid about London, his plants being remarkable for their fine healthy foliage and well developed spathes; yet, handsome as these specimens are, they cannot compare with the grand examples of A. Scherzerianum, shown from the same nursery. After our remarks upon the Azaleas at the Regent's Park and Crystal Palace shows, there is but little need to say much concerning the groups shown here; as, except a few collections, they were much the same. Mr. Turner's were even finer than they were at either of the other shows this season, particularly the collection of fifteen plants in 12-in. pots, which were well grown, and profusely flowered, and represented some of the finest kinds in cultivation. The only sort that we have not previously noticed is Bernhard Andreas alba, one of the finest double whites that we have seen, being simply the beau ideal of what a white Azalea should be. The very large plants from Garbrand Hall made a grand display on one of the central mounds, as did also a good group from Lady Goldsmid's garden, Regent's Park. A fine collection of eight Heaths from the Kingston Nursery represented this beautiful family in a way that is highly creditable to the growers; they were not only large but uniformly and profusely flowered, notwithstanding that several of the species shown are among the most difficult to do well. The collection from the Norbury Nursery, though considerably smaller, was likewise good; and Mr. Tudgey's group, which was second best, contained some superbly flowered plants of E. ventricosa and its varieties.

There was but one exhibit of thirty plants of tuberous Begonias, and that came from Mr. Coppin. It contained some excellent varieties, particularly those named Little Willie, Sir F. Roberts, Olympus, Orion, Midas, Venus, Mrs. Hodgson, Lelia, Flame, and J. Bright, all brilliantly-coloured sorts. The best yellow flowered kinds in the group were

those named Mrs. Coppin and Reve d'Or, the latter represented by several fair-sized and well-flowered plants, as indeed were most of the examples shown.

Fine-foliated plants were not numerous, there being only two collections of eight plants. These came from Handcross Park and Henwick Grange, and both were as fine as could well be desired; the group from Handcross was placed first, and well it deserved it, for the plants were all grand specimens of high class culture. It comprised Areca sapida, Cycas revoluta, Pandanus Veitchi, Fritchardia pacifica (a croton plant), Latania borbonica, a huge bush of Croton interruptum, and smaller ones of C. Youngi and C. Hendersoni. In Mr. Tudgey's collection some highly-coloured Crotons were a noteworthy feature, particularly C. Andreanum, Morti, and Queen Victoria, which latter is one of the handsomest Crotons amongst the many now in cultivation. Cycas circinalis was also prominent, being an uncommonly fine specimen; and likewise the true Cordyline indivisa, a plant that should be more grown than it is. Ferns, like the other fine-foliated plants, were not numerous, their being but three groups of six from amateurs. Of these the best came from Mrs. Torr's garden, at Garbrand Hall; it included a marvellous specimen of Davallia Mooreana, some 6 ft. or 7 ft. through, and in the most vigorous growth; and Microlepia hirta cristata, a Fern that will, in course of time, probably surpass the preceding as an exhibition plant. These two formed the chief merit of the group for neither of the Gleichenias (G. semivestita and dicarpa), or the two tree Ferns (Dicksonia antarctica and squarrosa) were very remarkable. The finest plants in the group from Mr. Warren's garden were two excellent Gleichenias, both large and fresh and in the best of health. They were G. rupestris glaucescens and Mendeli, two of the finest in the genus. A grand plant of adiantum concinnum latum, one of the loveliest of Maiden-hairs, was in the third collection from Loxford Hall, and likewise a good plant of Todea Fraseri, one of the Filmy Ferns, a class not often seen exhibited, but which would add an important and interesting feature to a show if a class were provided for them. Some Ferns also came from nurserymen, but amongst them there was nothing remarkable.

Orchids made a fair display though not so extensive as one would expect at such an exhibition, and the quality was decidedly not of the highest standard. Nearly all the collections consisted of "made up" plants which, though attractive, afforded no criterion of good culture. The judges with the view, apparently, of discountenancing this practice, awarded to the most attractive collection in the class for fifteen the second prize, and gave the first to a much less showy group but which contained only a few "made up" plants. This collection was shown by Mr. Child, of Garbrand Hall. It comprised a very fine example of Aerides Fieldingi, with six branching spikes which hung gracefully in front of the foliage; Saccolabium retusum, with five excellent spikes; a fine Cyrtopodium Stonei, with two tall spikes; good masses of Masdevallia ignea; Cyrtopodium barbatum; Dendrobium Farmeri, with eight spikes; and Oncidium ampliatum majus, also a good specimen. These all showed skilful cultivation, though somewhat marred by inferior plants of Odontoglossum vexillarium, Lælia purpurata pallida, L. canabarinia, and Cyrtopodium niveum. Other exhibitors in the open class for fifteen were Mr. James, of Lower Norwood, and Mr. Douglas, of Loxford Hall, whose collections were placed equal second, though that from Mr. James was much the showiest, and should have been first had it not contained such a large number of varieties—for instance, some half dozen forms of Odontoglossum crispum in one pot. Other noteworthy specimens in the group was a grand mass of Cattleya Mossie with sixteen blooms representing some of the finest forms, also Cattleya Mendelli with eighteen flowers; Dendrobium nobile; Odontoglossum citroszum, a fine mass principally of the

roseum variety; *Lælia purpurata*, the variety, with pure white sepals and petals, and a richly coloured lip; a good mass of *Masdevallia Veitchii*; *Oncidium concolor*, and an uncommonly fine panful, some 2 ft. across of well-flowered plants of *Cypripedium niveum*. The best amongst Mr. Douglas's plants were a remarkably fine *Dendrobium nobile*, large and profusely flowered; *Cypripedium villosum*, a beautiful specimen; *Calanthe veratrifolia*, good; *Dendrobium Wardianum*, and some small but well-flowered plants of *Odontoglossum Roezli*, *Cattleya Mendellii*, and *Mossie*, the latter representing an uncommonly fine variety—one of the finest. The only collection of ten plants from amateurs came from Mrs. Southgate, Streatham, whose gardener, Mr. Salter, showed an attractive group similar to that exhibited at the Crystal Palace a few days ago, and alluded to in our report of that show. There were but two groups of ten plants shown in the nurserymen's class, Mr. James being first; his group contained remarkably well-flowered plants of *Oncidium Marshallianum*, *Cattleya Mossie*, with ten flowers, a fine *Cypripedium barbatum*, *C. levigatum*, with five flowers, and *Oncidium macranthum maximum* (a fine variety). The other group from the Kingston Nursery contained a few creditable plants, mostly *bona fide* specimens.

Pelargoniums.—As is usually the case at these large summer shows *Pelargoniums* were wonderfully fine—better, in fact, than we have ever seen them—and though there were only two exhibitors in the two classes for show and fancy varieties, there was a grand array of bloom occupying a third of one side of the long tent. Both Mr. Little and Mr. Turner showed very fine collections, those from the former being the largest and finest, the nine show varieties being magnificent examples of high-class culture. They comprised Prince Leopold (a plant fully 5 ft. across), Prince of Denmark, Isabella, Mary Hoyle, Jeannette, Pericles (very fine), Snowflake, Kingston Beauty, and Sultana. Mr. Turner's plants, though fine, were not so uniform. They consisted of Illuminator, Prince Leopold, Maid of Honour, Viscount, Claribel, Despot, Charmingagne, Kingston Beauty, and Patroness. Fancy varieties were finely shown by Mr. Little for the first, and by Mr. Turner for the second prizes. The Hillingdon group consisted of large plants, but not so profusely flowered as the somewhat smaller collection from Slough. The latter were literally covered with bloom, particularly Ellen Beck, Princess Teck, Mrs. Hart, Roi des Fantaisies, and East Lynn. Fanny Gair, the Shah, Mrs. Porter, and Thos. King, were likewise shown in the group. The varieties comprising the collection shown by Mr. Little's gardener (Mr. Wiggins), were Mrs. Alfred Wigan, Lucy, Princess Teck, Mary Goddard, Mrs. Hart, Goliath, Mrs. Porter, Roi des Fantaisies, and Duchess of Edinburgh.

Hardy flowers were, as has been stated, shown better on this occasion than they have hitherto been, though there were but two competitors in the class for thirty plants in pots. These collections were from Loxford Hall, and from Messrs. Hooper's nursery, Twickenham. The group from Mr. Douglas, which was the finest, consisted wholly of showy plants, amongst which were *Lupinus bicolor*, an early variety of *L. polyphylus*, but very showy; a few varieties of double *Pyrethrums*, in well flowered specimens; *Centaurea montana alba*; *Saxifraga Wallacei* (a fine plant); the pretty early-flowering *Lilium tenuifolium*, *Aquilegia coerulescens*, a most delicately-coloured Columbine; *Lychnis diurna fl.-pl.*; two or three varieties of *Phlox setacea*, all very finely-flowered masses; *Saxifraga corymbosa pyramidalis* (*S. nepalensis*); very fine *Cypripedium acaule*; *Armeria cephalota* (excellent); *Antirrhinum liliatum*, and the double *Barbarea vulgaris*. In Messrs. Hooper's group were beautiful plants of *Armeria alpina coccinea*, one of the finest of all the Thrifts; *Campanula Barbelieri*, one of the best of all the dwarf Hairbells; *Aquilegia coerulescens* hybrida; *Delphinium nudicaule*; *Saxifraga nepa-*

lensis; and the charming little *Eritrichum nanum*. The same exhibitors also showed thirty bunches of hardy flowers well, but were surpassed by Messrs. Barr & Sugden, who had an extensive display, some 50 ft. in length, consisting chiefly of cut blooms of *Pyrethrums*, in very fine variety, interspersed with boxfuls of plants of *Sedums* and *Sempervivums*, among the latter the very handsome and rare *S. leginæ-Amalie* and *S. triste* were prominent, being shown in quantity and to perfection. An extensive group of hardy plants was likewise shown by Messrs. Carter and Co., in which was a large number of pretty and interesting hardy perennials and alpine plants. Messrs. Osborn and Sons likewise showed a collection from their Sunbury Nursery. A fine group of *Ixias* and *Sparaxis* was also shown by Messrs. Barr and Sugden, and these beautiful flowers were also well shown by Messrs. Veitch in numerous variety. Pansies made a good show, there being three collections of sixty blooms, the finest from the Sunnypark Nurseries, Aberdeen, being indeed excellent.

Groups of plants.—There were two competitors for the prizes offered for a group of miscellaneous plants in pots, occupying a space not exceeding 500 square ft. The premier award was taken by Messrs. Cutbush, who had a very tastefully arranged collection. It occupied one corner of the tent, and took the form of an undulated, sloping bank, having for a background tall *Cordylines*, *Palms*, &c., rising out of a groundwork of smaller plants. The front portion was disposed in crescent-shaped masses, the plants being in rows. The most noteworthy plants were *Erica Cavendishii*, *candidissima*, *ventricosa*, and *Boronia elatior*; other hard-wooded plants in the group were also well grown and flowered. The colours of the various classes harmonised admirably, as did also the varied forms; the whole group, indeed, had many admirers, and well deserved the distinction accorded it. The other group consisted chiefly of ordinary market plants, the arrangement of which was entirely different from that just alluded to. Other groups included one of flowering and fine-foliaged plants from the Norbury Nursery, the only one in competition for the prize offered for 100 plants. The chief merit of the group was the great excellence of the hard-wooded plants, such as *Heaths*, which throughout were finely flowered though small.

An extensive group of *Rhododendrons* from the Berkhamstead Nurseries made an attractive display, as also did one of *Clematises* and *Rhododendrons* from Mr. Noble, of Bagsbot. Groups of miscellaneous plants from Messrs. Laing, B. S. Williams, and others, added considerably to the attractions of the exhibition, as did also some beautiful collections of cut flowers, notably *Pyrethrums* from Messrs. Kelway, *Pelargoniums*, *Petunias*, and various other bright plants from the Swanley Nurseries.

Hollies and Ivies were well shown, though of the Hollies there was but one group. This came from Messrs. Cutbush's, and comprised a very fine dozen bushes ranging from 6 ft. to 10 ft. high, representing such fine varieties as *Wateriana*, *argentea*, *ferox argentea*, *Handworthensis variegata*, *argentea marginata*, *Mediopicta*, among the variegated leaved kinds, and *scottica*, *Hodginsii canadensis* among the greens. The best dozen specimen Ivies came from the Slough Nursery, and made a handsome uniform group, the plants being trained in a tall globular form. It included such excellent varieties as *dentata*, *marmorata minor*, *heterophylla*, *lucida poetica*, *lobata major*, *rhomboides obovata*, *marginata grandis*, *pedata* and *arborescens*, the last a tree Ivy with bright golden foliage. In the other group from the Berkhamstead Nursery, *dentata*, *baccifera aurea*, *taurica*, *hibernica*, *maculata major* and *minor*, *himalaica* and *spectabilis*, were noteworthy kinds all being distinct and with handsome foliage.

New plants.—Considering the importance of this great annual show one would have thought that new plants would have been well represented, but such was not the case, there being only one

collection of a dozen plants from Mr. W. Bull. The finest plant in this group was *Spiræa Aruncus astilboidea*, a plant similar to the Goat's Beard, but finer, having dense feathery plants over-topping the foliage in a beautiful manner. The other plants were, *Wallischia nana*, *Diefenbachia regina* and *rex*, two handsome-leaved plants, *Anthurium digitatum*, and *A. nitheryense*, *Draena australis marginata*, and *D. aureolum*, *Selaginella involuta variegata*, *Sarracenia erythraea*, a handsome *Laurus Camphora variegata*, and *Illicium religiosum variegatum*, two very handsome foliaged shrubs. The special prizes usually competed for at this show were not offered this year.

Fruit.—There was a small, but good display of fruits. The only pair of Pine-apples came from Lord Carington's garden, Wycombe Abbey, Mr. Miles showing an excellent Charlotte Rothschild and a good Queen. A fine Charlotte Rothschild was also first in the class for a single fruit of any sort; but Queen and two smooth Cayennes were the other fruits shown in the class. Owing to the early date, the Grapes were not a great feature, though a finer three bunches of Black Hamburgs are seldom seen in May than those shown by Mr. Loudon from The Quinta, Chirk. The bunches were large, the berries also, and as black as Sloes. The bunches from Bayham Abbey and Warren Wood, Hatfield, were likewise good, but some of the other exhibits were below mediocrity. Black Grapes of any other variety were fairly well shown, there being some creditable bunches of Black Prince and a set of three bunches of last year's Alicante, which were bottled on December 28. These from Mr. Wallis, of Keele Hall, were placed third, being in an excellent state of preservation. The only presentable White Grapes were the Buckland Sweetwaters; others, especially Alexandrian Muscats, being quite green, though the bunches and berries were fair. Foster's Seedling and Buckland Sweetwater were the kinds shown by the four exhibitors, the judges selecting the fine bunches of the latter variety from Bayham Abbey for the first prize. Peaches and Nectarines were not numerous, but some were excellent in quality. A dish of Grosse Mignonne from Blenheim were very fine fruits, large and well coloured, and well deserved the highest award, though the next best dishes consisting of Grosse Mignonne and Stirling Castle were not much inferior. The latter variety was shown by two or three of the other exhibitors, and promises to become a prominent early variety, being of fair size and of high colour and of excellent flavour. The best dish of Nectarines, out of the five shown, was one of Lord Napier, which contained fine large fruits of good colour. *Violette Hative* was shown in excellent condition for the second, and Hunt's Tawny for the third prizes. Cherries were few, but excellent in quality; Mr. Miles, of Wycombe Abbey, showing the best two dishes, consisting of Black Circassian and Governor Wood; while the same exhibitor also showed the best single dish, which was of the Black Circassian variety. Strawberries, likewise, were few, there being but one exhibitor of three dishes; but there being as regards one could well be, simply perfection as regards uniformly large size and colour. They consisted of the President, Sir Joseph Paxton, and Sir Charles Napier varieties, and were shown by Mr. Norman, gardener to the Marquis of Salisbury, Hatfield House. The same exhibitor also showed the finest single dish, which contained uncommonly fine fruits of the President, which was also shown by three of the other exhibitors, a proof of its excellence, being large and of fine appearance and flavour. Melons, as usual, were a numerous class, single fruits being shown by a score or so of exhibitors. The fruit selected by the judges was a fine specimen of Sutton's Hero of Lockinge, grown by Lord Carington's gardener. It is a round, finely netted, white-fleshed variety, of most delicious flavour, having an aroma seldom possessed by Melons. The second best was a good fruit of a new scarlet-fleshed variety named William I., raised and shown by Mr. Howe, gardener at Benham Park, Newbury. The excellence of this variety is established, for it not only won the prize in the class but it

was also awarded a first-class certificate on the same day by the fruit committee, a distinction likewise accorded it lately at the Reading Show. It will no doubt be a coming Melon, being of delicious flavour and of handsome appearance. The stock of this new Melon, we learn, has been secured by Messrs. Sutton, of Reading, for distribution. The third prize was won by Carter's Blenheim Orange Melon, a fine fruit, shown by Mr. Austen, of Ashton Court, Bristol. Other prominent varieties were—Victor of Bath, William Tillery, Lockinge hybrid, High Cross hybrid, and Best of All. There was a good competition for the special prizes offered by Messrs. Carter & Co. for the five best fruits of their new Blenheim Orange Melon—the variety that won so much admiration last year, being the best out of a large number shown. It is a handsome, round fruit, well-netted, and with scarlet flesh and of an excellent flavour.

Vegetables.—In the class for ten kinds of vegetables the prizes offered brought what, for the time of year, must be regarded as an excellent display. Mr. Miles, gardener to Lord Carlington, Wycombe Abbey, who was placed first, had a collection of marked excellence; it included a fine bundle of Asparagus, handsome Stamfordian Tomatoes, early-forcing Cauliflower, Laxton's Unique Peas, the best sample in the show; Globe Artichokes, Prince Albert Marrows, Intermediate Carrots, White Queen Onions, Lady Paget Lapstone Potatoes, and Tender and True Cucumbers. The second prize was taken by another first-class cultivator, Mr. Austen, gardener to Sir Greville Smythe, Bart., Ashton Court, Bristol, whose Asparagus and late White Broccoli were fairly good, while Marrows of the true vegetable cream strain were of the handsomest; Carter's Model Cucumbers, William I. Peas, early French Carrots, Canadian Wonder Beans, Ashleaf Potatoes, early Munich Turnips, and Excelsior Tomatoes, were also all excellent. Mr. H. W. Ward, gardener to Lord Radnor, Longford Castle, Salisbury, came third with some fine Lapstone Potatoes, early Nantes Carrots, good London Cauliflowers, &c. A really excellent collection from Mr. Haines, Lord Radnor's gardener at Highworth, was very nearly equally meritorious. Messrs. Sutton's prizes for four dishes of Peas of their own sorts brought but two competitors; of these Mr. H. W. Ward had samples fairly good, and, for the season, not unworthy of the first prize. He had Emerald Gem, Ringleader, Day's Early Sunrise, and William the First. Messrs. Daniel's prizes for the best brace of their Defiance Cucumber brought only one exhibit, and that a very poor sample, from Mr. Nettleburgh, gardener to Colonel Ross, Worstead House, Norwich, and we were surprised to find that the judges had awarded a first prize to such poor fruits. Mr. Ward exhibited, not for competition, some good Tender and True Cucumbers and Lapstone Potatoes. Tomatoes made a very good class; Mr. McIndoe, gardener to Sir J. Pease, Bart., M.P., of Hutton Hall, Yorkshire, being placed first with fairly good Stamfordians. Mr. Douglas, Loxford Hall Gardens, was second with a very good sample of Filbasket, though uneven in size, and Mr. Miles came third with medium-sized, even, and handsome sample of Stamfordian. This same variety from Longford Castle was most grotesque in form, presenting the very antithesis of Mr. Miles pure strain.

Asparagus.—The exhibition of this now popular vegetable was perhaps as good as could be expected, and showed a slight improvement as regards cultivation. The best samples came from the market gardens at Colchester, and Mr. Lobjoit's, near London. These latter seemed of the freshest, cleanest growth. Mr. Harwood's (Colchester) specimens were very fine, but did not seem to have the perfectly straight clean growth of the Putney Asparagus. To us, any that is curly or wavy towards the top never seems so good. Really well-grown Asparagus should be perfectly straight and vigorous in the uprising shoot. The best private exhibition was a very successful one made by Mr. Allan, of Gunton, an excellent grower of many things besides Asparagus. He, as our readers know, has long ago adopted the open

planting system, and swept all before him at this show. The more experience he has of the system the better, he says, he likes it. The question of climate is to some extent settled by Mr. Allan's experiments, because Norfolk can scarcely be said to have as good a climate as the Thames Valley for the growth of this vegetable. So much for those who think it is a question of climate. On all alluvial and sandy soils, of any depth or quality, as good results as those attained by Mr. Allan could be got. The old question of green and blanched comes up in the conversation of many people, and those who have least experience of the matter venture the hardest expressions, generally taking no notice of the fact that high class Asparagus cannot be produced at all without blanching. This is the experience of every grower in this country, and every other. If it were not blanching it would quickly break into scales and buds, and once this is the case cooking with any degree of success is out of the question. The vegetable is of so agreeable a flavour, that if one cuts it in any state fresh from one's own garden and boils it at once, one enjoys it; but only those who experiment with it in cooking every day in the season, or grow it extensively, and who send it largely to market, who are obliged to study the conditions under which it can be produced in a succulent state, and in the best condition for selling or for eating, know how needful the blanching is. Tried under equal conditions, and properly cooked, as soon as possible after being cut, there can be no question whatever as to the superiority in delicacy and succulence of the "grass" which is blanched nearly to the top, i.e., which is cut just as the pink head emerges above the soil, but before it breaks into a green scaly bud. Most people seem to enjoy Asparagus, and this promises much for its eventual fate in this country, for assuredly what is sold in London and throughout England for Asparagus is a very poor commodity compared with what it should be. We speak from careful trial of every variety of growth that comes to the London market; sometimes the French is good, but deficient in quality through age. The best English grown is far too high in price. The second quality of French has a good deal of inferior Asparagus only fit for "spruce"; it is sold in enormous quantities in our markets long after Asparagus is in full growth in this country.

There was a very fine specimen of Asparagus sent from France, by Monsieur Girardin-Collas, 6, Rue des Gobelins, Argenteuil, but it came too late for the competition. It was of great size, but somewhat unequal, and some of the stems approached the monstrous. To suppose, as many would, that such large Asparagus is necessarily deficient in quality, generally shows that we have not eaten it fresh and properly cooked. The very large is not the most desirable, but the size just under the largest is the perfection of Asparagus. When properly cooked its flavour is a new revelation! The contrast between the Argenteuil "Grass" and the usual type was great indeed! The best size for general use, and what the gardener should aim at, is something between the two, but not inferior in size to the best grown London market garden produce. We need not be afraid of having it too big. The finer specimens at the show were no doubt the very biggest of a careful picking over the whole area cultivated by each exhibitor.

Implement Exhibition.

ADJOINING the exhibition tents there is an extensive exhibition of horticultural structures and appliances, which, owing to the success that attended a similar exhibition last year, will remain open until July 5. The show is a fairly representative one, every class in the schedule being represented more or less largely, besides numerous miscellaneous exhibits. There were twenty classes provided for in the schedule, two or more prizes being awarded to the most meritorious exhibits in each, consisting of a silver and a bronze medal representing respectively the first and second prizes, besides certificates of merit to particular objects.

The following are among the most prominent exhibits as they occur in their respective classes:—

Class structures.—These include houses, pits, and frames of all descriptions. The first prize (a silver medal) for the best house was awarded to Messrs. Foster & Pearson, Beeston, Notts, for an excellent structure 50 ft. long, fitted with very efficient and simple ventilating gear. The bronze medal was won by Messrs. Boulton & Paul, Norwich, with a larger structure; also an excellent one, but of a different class. The same exhibitors were also awarded a bronze medal for movable pits and frames; the silver medal in the same class being secured by Messrs. Foster & Pearson, for frames of various sizes, fitted with a capital arrangement for adjusting. Messrs. Messenger & Co., Loughborough, were also awarded a bronze medal for pits and frames, which well merited the award. Mr. B. Warhurst, Highgate Road, is a large exhibitor of glass structures, and to him was awarded the only medal for an improved system of glazing without putty. This system consists in having bars of lead grooved so as to allow of the glass being let in, the edges are then simply pressed together, thus holding the glass firmly. The plan is efficient, light, and durable; the rate of oxydization of the lead being very slow; in fact, it may be considered almost indestructible, thus possessing a great advantage over zinc. Other exhibitors of improvement in glazing, ventilating, &c., are Mr. Farham, Bath, who also exhibits several structures; Messrs. W. E. Rendle & Co., Westminster Chambers, show their patent Acme glazing; Messrs. Horley, Tooting, Beds., have their Premier and Paragon greenhouses; and Messrs. Johnson & Bros., Pall Mall, are exhibitors of an excellent curvilinear Peach case, glazed on their imperishable system. They also show, among other things, a capital arrangement for protecting wall trees, which are glazed frames made to swing so that the trees may be exposed or protected at will.

Boilers.—These, as is generally the case in such exhibitions, were numerous, and it would be a difficult matter indeed to speak of the merits of each. The boiler that the judges singled out for the premier award (the silver medal) was that called Ben's Boiler, shown by Mr. B. Warhurst, Highgate Road. It is a ribbed and flued saddle, possessing great power and efficiency, and economical in working. Another advantage possessed by this boiler is that it can be set in the least depth of stokehole—a consideration in some districts. The peculiar construction of the boiler combines all the advantages of the ordinary saddle form with the quick-heating property of the tubular kinds, without their objections. It is no doubt a boiler that will have a good future. A bronze medal is awarded to Messrs. Foster and Pearson, Beeston, Notts, for a boiler called the Monarch, which may be best described as an upright tubular, entirely surrounded by a water jacket, saddle top and bottom to the vertical tubes. It takes the form of a truncate cylinder, and may be set independently of brickwork or otherwise. It is said to be a powerful and quick working boiler. Messrs. Foster and Pearson also exhibit several forms of boilers, notably the Imperial Crown, Conical, Terminal End, Gold Medal, and New Upright. Messrs. Jenkins & Co., Masbro' Boiler Works, Rotherham, who show a large collection of their welded boilers of numerous designs, from the upright slow combustion to powerful saddles, such as the "Chatsworth," were awarded a bronze medal; as were also Messrs. Kinnell & Co., Bankside, South-wark, who show Rochford's horizontal tubular saddle boiler, which is highly spoken of as respects great power and quickness of action, combined with simplicity of construction and economy in working. The same exhibitors also show their Acme slow combustion coil, Terminal End, and Chambered Saddle, and Independent Horse-shoe boilers. Messrs. Green show their new tubular saddle boiler (not for competition) which won the premier prize last year.

Other heating appliances.—Like boilers the various appliances for heating purposes form an important feature, being numerous and varied.

In the class for the best mode of heating a small conservatory attached to a dwelling house there are some seven competitors; the first prize was awarded to Messrs. Messenger, Loughborough, and the second to Mr. Keith, Edinburgh, both systems being good, but each having their respective merits. Messrs. Messenger likewise had a silver medal for the best mode of fixing hot-water piping, valves, &c. The bronze medal in the same class was won by Messrs. Appleby, Chesterfield, who show their system of fitting the sockets of hot-water pipes by means of India-rubber joints. Mr. Warhurst is also a large exhibitor of removable pipe joints, valves, &c., likewise Messrs. Kinell & Co. and Messrs. Foster & Pearson, the latter receiving a special certificate of merit for a new removable throttle valve.

Lawn mowers.—These were shown by about a dozen exhibitors. The premier awards (silver medals, offered for the best hand and best horse-power machines) were won by Messrs. Crowley & Co., Sheffield, who exhibited Edward's Patent, which for some years has proved to be one of the most efficient lawn mowers we have, being a strong, yet light, working machine, and one which cuts smoothly. Both the hand and horse machines have reversible rollers, that is, the roller placed either before or after the cutter. Messrs. Crowley's exhibits included all sizes of machines, from 12 in. to 40 in. A silver medal was also awarded to Messrs. Deane & Co., King William St., E.C., for the Excelsior lawn mower, likewise an excellent machine, possessing the advantage of the four cutters being removable if necessary. Messrs. T. M. McKenzie & Co., Holborn Viaduct, took a bronze medal for their President mower, also an excellent working machine. All the competing machines had a fair trial on the lawns in the gardens. Of the horse mowers, Edward's Patent, shown by Messrs. Crowley, was the only machine awarded a prize. Others are exhibited, including Green's Patent Silens Messors and Maltum in Parvo, which, however, did not compete. Messrs. Nettlefold, High Holborn, showed the Coventry, and Messrs. Rollins & Co., Old Swan Wharf, the Archimedean.

Pottery, statuary, &c.—In garden pottery the largest exhibitor was Mr. Matthews, Royal Potteries, Weston-super-Mare, who has a large and varied display of all kinds of pottery, including statuary vases, Orchid pans, rustic work, &c. A special certificate of merit was awarded to this exhibitor for a grooved rim pot, so as to admit of a bell-glass standing on it, and alike useful for propagating purpose, filmy Ferns, or other plants, requiring a moist confined atmosphere. These grooved pans or pots have hitherto been only made in expensive ornamental ware, but this new one is like an ordinary pot, and but little more expensive. Messrs. Stiff & Son, Lambeth, are large exhibitors of pottery, statuary, &c., and are awarded the bronze medal. Messrs. Rosher & Co., Chelsea, have a large display of flower stands, edged tiles, and conservatory decorations, and are awarded the silver medal, the bronze medal being awarded to Messrs. Kessell & Sons, Southwark Street, for fountains, fountain aquaria, Fern and flower stands. The Clebrooke Dale Company receive a silver medal for an extensive display of conservatory furniture in iron of a highly ornamental description.

Wirework garden chairs, &c.—The largest exhibitors of wirework are Messrs. Thomas & Co., 285, Edgware Road, who have a very extensive and attractive display consisting of every conceivable kind of wirework wrought in the highest class of workmanship some of which is the same as that shown at the last Paris Exhibition. These exhibits take up a good deal of space in the entrance corridor as well as in the grounds. They are awarded the gold medal for the most extensive and best general collection of exhibits in the show, and are awarded a certificate for a new sectional wire conservatory stand, and a silver medal for the best garden chair, an ingenious combination of chair and table, folding up compactly when not

in use. They also exhibit a large assortment of chairs and seats. Mr. Warhurst is awarded the bronze medal for chairs and seats, and similar exhibits are shown by some half-dozen other firms. Mr. Holliday, Chelsea, is also a large exhibitor of wirework in great variety, to whom a bronze medal was awarded.

Garden engine syringes.—Messrs. Warner & Sons are large exhibitors of these, and are awarded the silver medal. Messrs. Arnold, West Smithfield, being awarded the bronze medal for their new patent simplex garden and fire pump, one of the most efficient, easy working instruments we have yet handled. They also show their improved syringes. Messrs. Appleby exhibit a large collection of pumps, both chain and force, and Messrs. Nettlefold and Sons are awarded a certificate of merit for their new shielded syringe, a greatly improved instrument.

Garden tenting, shading material, &c.—In this class Mr. B. Edgington is awarded the silver medal and a certificate of merit for Willesden waterproof canvas tent; Messrs. Thomas & Co. and Mr. Unite, Edgware, being awarded bronze medals for similar displays. Lawn tennis apparatus is shown by Mr. Unite and Mr. Parham, the latter being awarded the silver medal.

Garden cutlery and tools are shown extensively by Messrs. Nettlefold & Sons, who are awarded a silver medal in each class, and for meteorological instruments Messrs. Davis & Co., Kennington Park Road, who have a large display, are awarded a silver medal. No award is given in the class for plant guards, supports, flower stakes, labels, &c., though numerous exhibited.

Among miscellaneous subjects a bronze medal is awarded to the Pall Mall Lawn Edging Company for their capital little instrument for trimming lawn edges, and a certificate of merit is awarded to Mr. V. Wells, Earlswood, Redhill, for his new spray distributor, an ingenious contrivance for distributing insecticide or other liquid. Mr. Bertram, Newgate Street, is awarded a certificate of merit for chemical fire liquids, which are said to be most efficient for the purposes of fire extinction.

Floral Committee Meeting.—Several exhibits were placed before this committee, and among them the following were awarded first-class certificates.

SELAGINELLA PLATYPHYLLA.—A distinct and handsome species, having gracefully arching fronds of deep green. Messrs. Veitch.

HYDRANGEA JAPONICA TRICOLOR.—A variety having the foliage prettily variegated with white and pale green, and conspicuously margined with golden-yellow. Messrs. Lee, Hammersmith.

ADIANTUM DOLABRIFORME.—A Maiden-hair Fern, resembling *A. lunulatum*, but evergreen. The fronds are long and elegant, having crescent-shaped pinnae. Mr. B. S. Williams.

ODONTOGLOSSUM ALEXANDRE GIGANTEUM.—Truly a gigantic-flowered variety, the blossoms being some 4 in. across, the sepals and petals broad, beautifully crisp, and white. The plant shown bore a long arching spike carrying a dozen or so of flowers. Mr. Warner, Broomfield.

ONCIDIUM LAMILLIGERUM.—A handsome species in the way of *O. macranthum*, but with finer flowers, the lateral sepals being very broad, and of a clear rich yellow. Mr. Dorman, The Firs, Sydenham.

VERONICA HULKEANA.—A New Zealand species, having long wreaths of small blossoms of the most delicate lavender shade possible. A most desirable plant, and one that must become popular. Mr. Douglas, Loxford Hall, Ilford.

PELARGONIUM EURYDICE.—An Ivy-leaved variety, having double flowers of a deep rose-pink colour, produced copiously in large trusses. One of the finest of the class yet exhibited. Messrs. Cannell & Sons, Swanley.

TRICHOPIA BACKHOUSIANA.—An Orchid bearing the appearance of *T. suavis*, but the flowers are pure white and very lovely. The plant exhibited was freely flowered, and well showed what a fine plant it is. Mr. Dorman.

SPERGULA PLIFERA AUREA.—A golden variety of the Lawn Pearlwort, which no doubt will prove useful for many purposes, particularly for working designs in carpet bedding, as it is so compact in growth and so uniform in colour. Mr. R. Dean, Ealing.

BEGONIA BALL OF FIRE.—A very fine variety, having large, finely-shaped flowers, produced plentifully on small plants, of a vivid scarlet-vermilion colour, one of the brightest yet raised. Messrs. Laing & Co., Forest Hill.

ADIANTUM BOURNEI.—A very distinct Maiden-hair Fern, having fronds densely furnished with pinnae, so as to appear of several thicknesses; a valuable addition to greenhouse Ferns. Mr. Bourne, Eltham, Kent.

LAVATERA ARBorea VARIEGATA.—A variety of the native Tree Mallow, with the foliage variegated with several shades of green, white, and yellow, which makes it an effective plant of its class. Mr. T. Smith, Lydney Park, Gloucester.

ROSE MARIA HENRIETTE.—A beautiful climbing Rose, having large full blossoms of fine globular shape, in the half-expanded state, and of a rich crimson-lake colour. A valuable addition to the list of beautiful Roses. The flowers shown were cut from a plant against a wall having a S.S.W. aspect. Mr. R. Veitch, Exeter.

MASEDEVALLIA VEITCHI GRANDIFLORA.—One of the finest flowered forms of this lovely Orchid we have seen, the blossoms being nearly twice as large as usually seen, and very beautifully coloured. Mr. Dorman.

STATICE FLORIBUNDA.—Somewhat resembling *S. profusa* and *Butcher's*, but finer than either, being more profuse in flower, and of higher colour. The plants shown were small and dwarf, but were completely covered with large spikes of rich, purple blossoms. Messrs. Lee & Sons.

Fruit Committee.—A first-class certificate was awarded to Mr. C. Howe, Benham Park, Newbury, for a new Melon called William I, a hybrid between Read's Scarlet Flesh and Queen Emma. It is a round, scarlet-fleshed variety, excellent in flavour and finely netted. Messrs. Daniels Brothers, Norwich, showed thirty or forty fruits of their Defiance Cucumber, all large and good. Mr. D. Goldsmith, The Gardens, Polesden Lacey, has some fair examples of Royal Ascot Grape. Mr. Taylor, gardener to J. McIntosh, Esq., Duneave, showed a fruit of Blenheim Orange Melon of good size and depth of flesh. Mr. W. Elphinstone, Shipley Hall, Derby, was awarded a cultural commendation for some fine brown Turkey Figs, and Mr. W. H. Ward had a similar recognition for a number of fine Citrons. Mr. Wells, of Earlswood, was accorded a vote of thanks for samples of Wells' Telegraph Cucumbers. Mr. Ross, gardener to C. Eyre, Esq., Welford Park, sent a collection of well kept Apples.

A list of the prizes awarded at the foregoing shows will be found in our advertising columns.

Names of Plants.—Scotney.—*Mentha Requienii*.—*T. C.*—1, *Thuja* bobi; 2, *Libocedrus decurrens*; 3, *Thuja occidentalis*; 4, *Juniperus chinensis*; 5, *F. Double-flowered Narcissus poeticus*.—*A. K.*—Apparently *Pomopsis elegans*; *Smilacina racemosa*; *Chrysanthemum icomaria*.—*M. R.* *Fernhurst*.—*Limnathes Douglasii*; *Sanguinea Heuchera ribifolia*.—*W. D.*—*Cytisus odoratus*.—*T. Slade*.—*Saxifraga granulata* 4. pl.—*J. Afield*.—1, *Ribes aureum serotinum*; 2, *Spiraea callosa*; 3, *Asphodelus albus*; 4, *Kerria japonica* fl. pl.—*W. Barker*.—Apparently *Gladiolus byzantinus*.—*E. D.*—1, *Erinus alpinus*; 2, *Berberis thunbergii*; 3, *Sedum Aizoon*; 4, send a flower.—*R. V.* & *S.*—*Silene Zawarskii*; other cannot name.—*J. W. Longfoot*.—1, *Diplacus glutinosus*; 2, *Asplenium premorsum*; 3, *A. bulbiferum*; 4, *A. lasiopetalum*; 5, send with spores on fronds.

COMMUNICATIONS RECEIVED.
C. V. E. B. D. W. L. J. C. C. G. S. S. Scotney.—*J. W. W.*—G. H.—A. D. W.—W. G.—I. O. H. Y. G. A.—*W. H. F.*—S. F. P. A. & Co.—S. D. S. R. H.—*J. S. W.*—R. H. S.—G. J. W.—W. W.—J. G.—W. D.—*J. McK.*—K. & Co.—T. M. B.—W. G.—W. H. F.—T. C.—*J. G. B.*—A. D.—F. E. S.—T. M.—A. G. C.—T. S. W.—A. P.—*H. J.*—C. S.—H. C.—J. L. S.—H. C.—J. L. S.—J. R.—E. D.—W. N. A.—J. McK.—J. C. W.—C. A. P. T.—A. D.—*R. D.*—A. J.—C. & Co.

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"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

GARDEN THOUGHTS.

Most people have seen or read of the great *Bataille des Fleurs*, which is fought by the occupants of two lines of carriages, meeting each other on the Promenade des Anglais at Nice. This vigorous interchange of bouquets, consisting chiefly of Roses and Violets, is one of the prettiest sights of the carnival, and far more agreeable than those showers of confetti, which, containing a large element of plaster, are neither pleasant to the eye nor good for food; but we were reminded of something much more distasteful than these confetti, when, during one of the floral engagements—the last I had the pleasure of witnessing—and while Russian princes (including the Grand Duke Nicholas) and French marquises were pelting each other with posies, half-a-dozen French men-of-war were firing salvos of artillery, and we knew that just behind the projecting cliff towards the east there were great fighting ships of the Russians, and that no long time ago the armies of these two nations were at war by land and sea.

I thought of sad Jeannette's wise wish, and wished it—

Oh, but were I King of France, or, still better, Pope of Rome,
I'd have no fighting men abroad, no weeping maids at home;
All the world should be at peace; or if men must show their might,
Why, let those that make the quarrels be the only ones to fight.

e.g., let the two premiers, when governments are bellicose, be "put up" with pistols at the usual French distance of 300 yds., retiring ten paces every time they miss. Better still, to have no duelling, no rivalry, except in the industries, commercial and agricultural, and in the arts—music, painting, and horticulture.

These memories and hopes, these *pensées d'une entente cordiale parmi les nations du monde*, came into my mind the other day on receiving from my American friend, Mr. Ellwanger, his treatise on "The Rose." Not that I am afraid of any fratricidal fooleries between John and Jonathan; the voice which whispers to the hearts of both, "Sirs, ye are brethren," will keep us from such a sinful calamity. But though we have believed from childhood that

It is a shameful sight
When children of one family
Fall out, and chide, and fight,

we cannot extend to Dr. Watt's ornithology the faith which we have in his morals. When he tells us that "birds in their little nests agree," we cannot close our eyes to indisputable evidence that they occasionally heave each other out, and we are constrained by painful observations to admit that their behaviour in the mealtime is, to say the least of it, decidedly self-asserting. Even so, there be family quarrels in nations as well as in nests, and *animal impune* will open his beak in a wonderful width for the worm, and will close it to peck his brothers and sisters for presuming to do as he did.

What is the remedy? In the nest, a worm for each nestling; in the private family, a garden for each child; in nations (I speak in THE

GARDEN to gardeners), horticulture. Let the Dutchman glory in his bulbs, the Frenchman, Italian, and Spaniard in his Vines and Olives, Oranges and Figs, the American in his Orchids and Apples, the Englishmen in his lovely gardens, the Scotchman in his accomplished gardeners, the Irishman his verdure and his hopes, the Guernseyman in his Lilies, the Jerseyman in his Pears, and all of us in our admiration of the Rose! There is welcome and abundant evidence of this ecumenical loyalty to the queen of flowers in these books, which are written with so much thoughtful love to extol her sweetness and her beauty. France has a monthly magazine, *Publication Mensuelle Speciale*, devoted entirely to the Rose. Prussia has recently sent to us a magnificent volume, sumptuously ornate and profusely illustrated, *Die Rose, von Th. Nietner*, and now we have this neat, handy little treatise from Mr. Ellwanger, of the Hope Nurseries, Rochester, in the State of New York.

And though the author refers in his preface to the difference of climate on his side of the Atlantic and on ours, which necessitates certain changes as to culture and selection, it is gratifying to find, as we read his book, that, as a rule, and in all essential particulars, the principles of treatment are the same; and that the Roses to which we award precedence in England, such as Alfred Colomb, Baroness Rothschild, Catherine Mermet, Charles Lefebvre, Devoniensis, Etienne Levet, François Michelin, La France, Louis Van Houtte, Madame Bravy, Madame Lambard, Marie Rady, Marie Baumann, Marie Van Houtte, Marquise de Castellane, Messrs. Noman and E. Y. Teas, Niphetos, Perles des Jardins, Pierre Notting, Rubens, Victor Verdier, and Xavier Olibo, are equally admired in America, and declared to be "lovely," "beautiful," "invaluable," "magnificent," and "grand," in the very words which we sight at our Rose shows, exhausted by our adorations, and faint with aromatic pain.

If some Roses thrive better with us, such as Camille Bernardin, Dr. Andry, Duke of Edinburgh, and other glorious Roses of that family raised at Cheshunt (including my namesake Reynolds Hole, a Rose which, like certain racehorses, runs and wins, or stops and kicks, defying an archer jockey than Archer himself to stir them); if Duchesse de Morny succumbs to mildew, and the Duke of Wellington evokes no praise; if Dupuy Jamain, which is with us one of the most reliable and robust, lacks fullness over the water, and Emilie Hausburg seems never to attain in America the soft, lovely freshness of complexion which it so soon loses with us; if Maréchal Niel, now in grand and golden beauty upon my walls, and certainly the most bounteous of all beautiful Roses in our conservatories, "is of such delicate constitution in the States, and requires such careful treatment to produce satisfactory results, that it is only adapted for culture under glass, and the inexperienced would do better to substitute other varieties," if Niphetos is entirely unsuited for growing in the open air; our brothers are consoled with other Roses which prefer their climate to ours, some of them unknown to us, even by name. For example, Mdle. Marie Berton (I am told by one who knows and loves Roses as thoroughly as any rosarian alive that Mdle. Marie Berton attains an exquisite beauty, both of flowers and foliage, in the south of France, and should be more generally and carefully cultivated here) has never shown herself to me as "a magnificent yellow Rose," and we should not include in a very select list of "the most beautiful Roses for exhibition" Cornelia Koch, Princess Louise Vic-

toria, Elise Boelle, A. Geoffrey St. Hilaire, Charles Margottin, Mabel Morrison," and others.

With these few exceptions, we can congratulate and sympathise with each other in our joyful admirations of the Rose. Alas! we must share our sorrows also. The same etymological and vegetable afflictions—ants and aphids, bugs and beetles, chafers and caterpillars, grubs and slugs, and spiders, mildew fungus, and thrips—come to both of us as sure as measles. "No one," writes Mr. Ellwanger, "can be more profoundly impressed with the curse entailed on Adam and his descendants than the reverent rosarian, for all that is hostile and bad, animate and inanimate, seem to combine in greater degree to prevent the successful cultivation of the Rose than is the case with any other well-known flower. The price to be paid for beautiful Roses is eternal vigilance, inspired by love."

In both countries alternations of drought and damp have the same influence upon the Rose, so that you can never tell which varieties are to be the belles of the season and the swells of the park. At the show, as in "the Row," you hear it said this year, "never saw Annie, or Emilie, or Eugenie, or Louise, or Margue rite, or Marie, or May, or Therese, or the Baroness, the Duchess, the Marchioness, the Princess, looking so lovely," and next year, "what has become of them?" So with the beaux also. Alfred Colomb, and A. K. Williams are abroad; Captain Christy has retired on half-pay; Charles Lefebvre is occupied in a law-suit against Paul Jamain, and Marguerite Brassac for obtaining money under false pretences. Edward Morren has something the matter with his "eye." Horace Vernet does not exhibit this season. Jules Margottin declares that he is too old, and Paul Neron that he is too stout for society. The Sultan of Zanzibar and the Shah excuse themselves on the plea of distance. But, in all gravity, can anyone tell us how it happens that, in different parts of the country, in different sites and soils, and under different methods of cultivation, certain varieties of the Rose in certain seasons will all fail or flourish together?

The Americans share with us another disappointment—I mean as to those "pedigree Roses" which were raised with so much care by Mr. Bennett at Stapleford, and which, from their parentage, from their apparent healthfulness of habit, and from their early efflorescence, seemed to justify all the encomiums of the raiser and all the hopes of the rosarian. I, for one, confidently anticipated a new and distinct family of Roses, and I tended them anxiously out of doors and in. There were times when hope told a flattering tale—I fondly thought it true—that they would be a great success; but it was only the hectic flush which accompanies a rapid decline. Then my own failure was solaced by the report that in America these Roses had found a genial home—that Jonathan walked about with them in his button-hole about the size of Cauliflowers, and pitied the disappointment of poor old John. But this book by Mr. Ellwanger makes a dissolving view of that interesting picture, telling us that in America, as in England, these Roses want vigour, power of development, and depth of colour—that they are "muddy," "soon sullied," "inclined to malformation," and "subject to mildew." The exceptions are Duchess of Connaught, which resembles La France, and Michael Saunders, full and finely formed. May the exceptions change places with the rule, and may perseverance and experience bring triumphant issues to Mr. Bennett and his pedigree Roses!

I have to announce two other publications which will interest and edify the rosarian. A select committee of the National Rose Society ("of which," as Mr. Swiveller said of the "Glorious Apollos," "I have the honour to be Perpetual Grand") has prepared a list of the Roses most suitable for exhibition. As this committee includes many of our most successful exhibitors, professional and amateur, and as these gentlemen at their numerous conferences have had the advantage of written annotations from those experienced brothers who could not attend in person, the result of their long and loving labour will be a most complete and reliable guide. The catalogue will be descriptive of shape, size, and colour, giving the raiser's name and the date of introduction, and adding remarks as to habit, &c. It will be followed, I hope, by a second list, comprehending the best Roses for all purposes to which Roses may be applied, for beds, hedges, pillars, bowers, walls, Rose houses, conservatories, &c. Our society will not deserve to be called "national" if we restrict our experiments and instructions to one section of Roses only, and the greatest happiness of the greatest number should be our rule in floriculture, as in all things else.

And the readers of THE GARDEN will be pleased to hear that the editor proposes, after the example of Birch and Houbraken, in their "Heads and Tales (biographies) of Illustrious Personages," and of more modern publishers in their "Men of Mark," to give us portraits, with brief descriptions, of the most beautiful Roses of our time, and that certain painters, royal academicians of the queen of flowers, have promised their co-operation. If this commencement is premature, the editor must place it on his "index expurgatorius"; but I hope it may appear as certifying his intention.

Finally, I would felicitate the lover of the Rose on the prospect of a glorious efflorescence, which is suggested by the healthful growth of leaf and bud upon our trees. I anticipate a grand display at the National exhibition of Roses in the gardens of the Royal Horticultural Society, South Kensington, on July 4 prox. May the winners chant their "Non nobis, Domine," in all humility; may the losers go home with new hopes and helps; and may victors and vanquished, may the warriors, and those who have come to see the wars (of the Roses), know more and more of the happiness of those who, by their loyal and faithful service, win the smiles of the Garden Queen. S. REYNOLDS HOLE.

EDITOR'S TABLE.

LYCHNIS DOUBLE KINDS.—An interesting series of *Lychnis* comes to us from Mr. E. Jackson, from the double form of the Ragged Robin of our riverside meadows to the old red rosy *Lychnis*; the handsomest of them all is the double rosy form of *Lychnis Viscaria*, which is a very handsome plant when well grown.

"FLOWERS of a remarkably floriferous and strong orange-flowered Geum, sent out by Clibran." So says the Rev. Wolley Dod; and the colour is a really fine and peculiar orange—a mixture of gold and Wallflower, so to say. The plant should not be lost sight of. The flower is large, and good both in form and colour.

EDELWEISS.—This little plant, comes to us from Llandegai, sturdy and healthy as it is on its native hills. Mr. Jackson finds no trouble in growing it any more than any other person need

who can grow the commonest alpine flower on the border or rock garden. It is most effective in a group of seven or eight plants. Poor soil and full exposure suit it best; in rich soil the growth is too vigorous.

A WHITE JACOB'S-LADDER (*Polemonium coeruleum*) with purple throat, and a very delicate flower too, charming in form and in colour. A variety of an old border plant worth growing; and yet one requiring a little care to place it so that it may not be in the way when out of flower. A carpet or spreading group of it in some quiet part of the borders will be the best way. From Mr. Stevens and the Rev. Wolley Dod.

BUDDLEIA GLOBOSA.—This quaint old shrub one seldom sees good about London, no doubt because it likes the west country air and seashore districts. It is very common and very vigorous on the coast in Ireland, and apparently the same in Wales, judging by some sent from Llandegai by Mr. Jackson. It is a bush of fine character in districts where it succeeds, but fighting against fate is not more hopeful than trying it where nipped in the winter.

FUCHSIAS FROM NORTH WALES.—All round the coast of Wales and many other coasts in our island one is often struck with the beauty of *Fuchsias* in autumn, and far into the autumn, too. We see now how early they begin by good specimens from Tan-y-bwlch. Where such things are grown without care, a beautiful garden comes with little trouble to the natives! *Fuchsias* and Tea Roses, and a few dozen spikes of *Gladioli*, and the Stocks and Carnations that love the sea-rocks—these in plenty, and we have a garden for a queen.

"HELENIUM HOOPESII.—I do not know whether this is grown much about London. It is very fine here, growing 4 ft. high, with five or six stalks like that sent." A fine Daisy-like flower, orange yellow, the rays wide apart, and the flower picturesque. It has an advantage over the rather numerous yellow composites in flowering earlier, even in the cooler country whence it was sent, fresh and vigorous from the gardens at Edge Hall, Cheshire.

ONOSMA TAURICA.—This plant we should have thought best on warm soils of the south of England, judging by what we have seen of it, and indeed in these it is very fine, but some sent us by Mr. Jackson shows that it is equally at home in Wales. A handsomer plant we have not got, if well placed on the rock garden, or a finer thing in both form and colour. It is a noble rock or bank plant, and does admirably, too, on a dry border. We say dry to save it in the winter, but that is not an essential to its growth.

A NOBLE ODONTOGLOSSUM.—A wreath of *O. crispum*, with the single blooms well over 3 in. across, shows, if any further proof were needed, the admirable qualities of this *Orchid* so really fine in form. The variety sent is marked by its fine fringing as well as size, and it is the largest we have seen. There are a good many *Orchids* so rare and so dear that they suit best the men who like to have and can afford to have things "no one else has." This *Orchid*, like the sun and air, may be enjoyed by all. From Mr. A. G. Soames, Waltham Old Hall, Grimsby.

ORNITHOGALUM ARABICUM.—The largest specimens we have seen of this extremely fine *Star of Bethlehem* come to us from Mr. C.

Smith, of the Caledonian Nursery, Guernsey. It is a noble plant in form and flower, and with a distinct and pleasant odour. The individual flowers on the flower-spikes are nearly 3 in. across when spread out, and in these the black centres and golden stamens set off the creamy white flowers well. This fine plant seems with us only growable well in the imported state, though there is no reason why it should not be well grown as a greenhouse bulb. Mr. Smith's specimens are admirably grown.

PINKS.—The white and red fringed *Pinks* of the London market gardens are now in bloom, and pretty they are on the table. They are good in any state. They are so easily grown, and so profuse in fragrant blossom, that everybody should have an edging or a large clump or two of them, putting in cuttings every year in case some of the old tufts disappear. They are grown in large quantities in Mr. Lobjoit's garden at Putney and in other gardens about London, and it is pleasant to see the lines and masses of them bursting into bloom at this season.

PRIMULA FARINOSA.—The Bird-eye Primrose seems as scarce as ever in a well grown state; the plant may be seen often, but people have not yet got the knack of growing it freely. It is to be hoped they will, because there is no prettier plant of the early summer. At one time the Indian Primroses were only seen weak in pots; now one sees sometimes a bed of them reminding one of young Cabbages in their vigour. Though we cannot get the same vigour into the Bird-eye Primrose, it is desirable that it should be well grown, and out of the pot stage, so to say, though few gardens have the cool boggy spots where it delights to grow.

BERBERIS NEPALENSIS FROM WALES.—This handsome evergreen bush is a test to some extent of a garden or a climate where a variety of beautiful evergreen things may be grown. Where it is stiff and slow in growth or yellowish in hue we should not try many half-hardy conifers or rare evergreens in the open air. Where free and graceful it promises much, and is a shrub of great character and use to the tasteful gardener. It comes to us in free condition from the gardens at Tan-y-bwlch, in North Wales. It is a fine plant for a wide area of the Welsh country and coast country generally, at least for sheltered gardens there.

A CARNATION!—There are pleasant surprises for us among flowers, but we did not hope to see a *Carnation* as big as a Cauliflower. Such is, however, the fact, and the flower comes to us from Colonel Hagart's garden, near Guildford. "*Carnation Souvenir de la Malmaison*, which I send," says his gardener, Mr. Fulliger, "is nearly 6 in. across. This I cut from a plant in an 8-in. pot, with four other blooms not quite so large, and ten buds looking well are left. I have cut several blooms measuring 5 in. and 5½ in. across from other plants, but the one sent I think is the largest I have grown." It is a perfectly-formed flower with a fine odour.

COLUMBINES FROM CAMBRIDGE.—When those delicious Pansies came from the Dicksons of Edinburgh, they seemed to us the type of all that is pure and beautiful among the many flowers of the northern world, to which these terms might well be applied; but just before going to press a little box of seedling *Columbines* from Mr. William Farrer, at Cambridge, puts before us another series of colours which we do not know how to describe; they appear seedling

kinds, raised by Mr. Farren, and he would require a good knowledge of colour who could describe them, let alone paint them! We adhere to our opinion, expressed more than once in these columns, that the geographical and other conditions which have resulted in giving us such fine, distinct forms in this family, have left us a precious legacy, which we should not be too quick to destroy. We think that one of the best ways for those who care about the *Aquilegias* is to keep the grand American, Siberian, and European types as distinct as may be and as pure. Nevertheless, these singular hybrids or varieties are of endless beauty and novelty of colour. The curious salmon-pinks and odd and new violets in this series would make the Daisy people desert their loves! We welcome in Mr. Farren, of Cambridge, a new disciple who, we hope, will go on and give that place a new home of hardy flowers as well as Roses.

RHODODENDRONS FROM WALES.—The Rhododendron is no partial plant in our country. Happily, neither mild coasts, nor inland hills, nor any particular condition of the atmosphere are necessary to secure its perfect health, an aversion to limestone being its only weakness. Mr. Roberts, in sending us a very interesting series of five kinds from Tan-y-bwlch, describes them as "our latest batch of Rhododendrons as with few exceptions the latest are now opening their buds. The past has been the longest Rhododendron season I ever remember, for we have not been without bloom outdoors since early last November. As the bushes are distributed over some acres of land, they have proved effective and enlivening during the whole time."

MERTENSIA SIBIRICA.—This elegant plant, which we figured a year or two ago, and which resembles so much the old blue Virginian Lungwort, comes to us from Grasmere graceful and fresh. We notice this year that in certain gardens where it was very attractive when first introduced it seems to have lost its vigour and continuity of bloom. This may be owing to the plants getting too large and old. The freedom and continuity of bloom which some plants show in the young state, that is to say the first year after they are put out, should lead to a modification of our culture of perennials in various cases. Some should be replanted often and put in fresh ground.

THE TREE LUPINE.—We have had no experience of this plant on wet soils, but the most agreeable impressions of it as seen on warm ones, where it bears a profusion of yellow flowers. A good big bush of it scents the neighbourhood like a field of Beans. Mr. Stevens sends a long spiced variety of it; there is no genus, perhaps, of plants which has been oftener named in our catalogues than *Lupinus*, but the number of good things that have come from it are really very few. This stands out among them as one of the three or four best and most distinct. It forms a good sized shrub, and though it may perish in very cold winters, is worth raising again.

CALOCHORTIS PULCHELLUS.—This charming plant comes to us from Mr. Rawson, of Bromley Common. It is a little Californian plant, with pale greenish leaves and very curiously made golden flowers, with as graceful a toss of the flowers as a Snowdrop. They keep a good while in water in the house. It wants a warm soil and snug spot to be happy, as it is one of the pretty bulbs that sparkle among the ground herbage in the warm soil and under the genial sun of the Pacific coast of North America. Of

all the *Calochorti* at Kew it is the only one that is anything like satisfactory; it is perfectly hardy in the light soil there, and never fails to flower freely.

TROLLIUS LODDIGESI.—From Mr. Wolley Dod "a giant form of the European type, with handsome foliage and flowers," a beautiful Globe flower, which we should like to see growing in rich moist soil in a cool district. In such it must be admirable. How do the Globe flowers keep in the house? They are now grown pretty largely by the London market gardeners, who bring them in large bunches. We trust Mr. Dod will take good care of this large form, because it is a plant that will grow anywhere, and is well worth while naturalising where there are opportunities. No choice border is needed for a stout Globe flower. Give a few plants a fair start in a spot usually left to the Grass and weeds by the pond or river-side, or anywhere soil is of a heavy character, and they will take care of themselves for a good many years.

BEDDING PANSIES AND VIOLETS.—We have much pleasure in sending blooms of about a hundred varieties of bedding Pansies and Violets, to show you the great variety of shades of colour that can be got in this class of hardy flowers. Many of them that appear much alike when cut are entirely distinct in habit of growth. In spite of the cutting east winds and scorching sun, they have been flowering profusely for a long time, but some genial showers would improve the size of the flowers very much now.—**DICKSONS & Co., 1, Waterloo Place, Edinburgh.** [We wish we could describe the rich and delicate beauty of many of these flowers from Edinburgh, a very home of the loveliest flower of our northern gardens. We should try to get some of the beauty of which these flowers are capable of properly used in bold groups and masses.]

"MENZIESIA POLIFOLIA ALBA and some flowers of bicolor.—This variety often produces flowers entirely purple and entirely white on the same spike, and is very curious and pretty. I find the *Menziesia polifolia* the most useful plant for carpeting peat Lily beds, growing neither too coarse nor too dense." We have never seen the white flower so free and regular in its pretty bells. We think the white is the best of the varieties, and it is one of the plants full of character which a tasteful gardener might make a charming use of. In a moist and cool district, and on a peaty soil it will grow, of course, better than in the lowland garden in the southern counties, where it sometimes becomes scraggy. The hill moisture, that is its right, is not found everywhere, even in these water-blessed islands. From the Rev. Wolley Dod.

STRANGE ROSES.—George Paul, who must be a busy man, sends us some single and other curious Roses, which are fragrant and very welcome. If one had nothing else to do, growing single Roses on a sunny bank would be a not wholly unprofitable way of passing one's days. There is a good deal more in single Roses than people suppose. We should like to have all the single seedlings that have been thrown away as useless to select from, and it would be very charming, too, to have all the species, especially the free-growing and hardy ones. If there were little more than the Dog Rose, as it shows its cupladen wands in our own lanes, one would be well rewarded. Mr. Paul writes, "I send *Rosa rugosa alba*, the strong climber *R. polyantha*, with its many flowers, the single or typical form of the Boursault, *R. alpina*, and what we believe to be *R. spinosissima*, the single yellow Scotch. There is

also a flower enclosed of the most perpetual Rose we have, Stanwell Perpetual, one also of the most richly scented."

"THREE forms of *Veronica gentianoides*—now past their best—one nearly pure white being far the best, and as far as I know less common than the others." Yes, the white one is pretty. Another odd border plant which is only worth growing where it grows freely, as it does at Edge Hall, but, being short-lived and without much character, it should always be used in some incidental way. Where any variety of hardy plant gardening is carried out it might be used as a ground or carpet plant for a small space. For instance, we often see 20 ft. or so of a so-called mixed flower border without a particle of life on it. At midsummer a plant of this kind might well occupy such a space, and improve the effect of the more important plants behind it or coming up through it. The white variety that Mr. Dod speaks of is very elegant with its pencilling of porcelain blue and curious blue stamens.

ORCHIDS.

Dendrobium Falconeri.—One of the handsoomest of all Dendrobies may now be seen beautifully in flower at Kew, where there is a well flowered plant attached to a block, representing the finest form we have seen, and but little inferior, if at all, to the variety of *giganteum* which has been exhibited of late. Such a beautiful Orchid is certainly worth a little extra attention, though it is a pity that it does not thrive so well under ordinary culture as others.

Trichopilia coccinea is one of the handsoomest of the genus, and it produces larger flowers than any. They have very large lips compared with the other parts, and are of a rich deep red colour, bordered by a broad recurved band of white. The sepals and petals, not so much twisted as in *T. tortilis* (which the species somewhat resembles), are reddish brown, bordered with a lighter colour. A really fine variety of it, such as we saw the other day at Messrs. Shuttleworth & Carder's, is very desirable, and may be grown in a moderately cool house.

Varieties of Cattleya Mossiae.—No lovelier or more useful Orchid can be grown than the true *Cattleya Mossiae*. True, it is one of the most variable of *Cattleyas*, but we were never so much impressed with the great range of variation belonging to it as we were when looking over the nursery of Messrs. Shuttleworth & Carder, in Clapham Road, where *Cattleyas*, especially *C. Mossiae*, *Triane*, *gigas*, &c., are imported from their native habitats by the thousand. In this collection at the present time one may feast their eyes on these gorgeously beautiful flowers, and yet not be wearied, on account of the wonderful variety of tints to be found among the blossoms. In some forms they have very deep rose-pink sepals and petals and an intensely deep amethyst tinted labellum, which is also invariably marked with a large blotch of golden yellow, more or less deep in tone. In others the tints are very delicate and pale, while in others again the flowers are remarkable for their large size, some of them measuring 6 in. or more across, and with very broad petals and sepals; in fact the varieties of this Orchid seem endless; consequently exhibitors who show their plants on the "making-up" system experience no little difficulty in endeavouring to match the colours. Any would-be cultivator of Orchids should on no account omit this beautiful *Cattleya*, and now that it can be procured cheaply, and not being difficult to grow—well, there is no reason why it should not be seen in every garden.

Changes among Orchid names.—A great revolution appears to be taking place with regard to the nomenclature of Orchids, judging

by what one sees in the Kew collection, in which there are some startling changes, as, for example, the following : *Odontoglossum vexillarium* is now altered to *Miltonia vexillaria*, and O. Roehli and O. Phalenopsis are both put under *Miltonia*. The short and easily-pronounced name of *Ada aurantiaca* is changed to *Mesospidium aurantiacum*. *Leelia Perrini* is called *Bletia Perrini*, while other alterations are no less remarkable. This revision is, we presume, carried out by Mr. Bentham, who lately has turned his attention to Orchidaceae, and there is no doubt that such a careful botanist has good reasons for making the changes in question, but whether they will be adopted by cultivators or not remains to be seen. It will certainly be a long time before one gets used to *Bletia* (*Leelia*) *Perrini* or *Mesospidium* (*Ada*) *aurantiacum*, but *Miltonia vexillaria* will be considered more euphonious than *Odontoglossum vexillarium*, and apart from that we think that everyone will admit that the species of *Odontoglossum* now placed under *Miltonia* have more affinity therewith, even as regards their superficial aspect, than with the generality of the species. Changes in nomenclature are, however, in most cases to be regretted, tending as they do to render confusion still worse confounded, especially as regards long-established names.—W. G.

Orchids.—Those interested in these flowers must be pleased to see their rapid growth in favour of late years; they promise to become everybody's flower in a sense. It is no longer a question of Rucker or Day, or a few more, as it used to be a dozen years ago. Many new and admirably managed collections have sprung up around London and our other large cities of late years, and among them that of Mr. Marcus H. Voss, of Streatham, is one of the best managed. Some noble Orchids, all rare examples of the best culture, come to us from his garden. They include some very fine spikes of the *Manilla* Moth Orchid (*Phalenopsis amabilis*), which, though it has been grown for nearly half a century, is still one of the most highly prized of the family, for there is not a more lovely flower in the whole of the vast tribe, and it continues so long in blossom. The pendent character of the graceful racemes displays the blossoms in front of the dark green foliage to great advantage. Of the noble and seldom-to-be-seen *Dendrobium Dalhousianum* there is a huge raceme with about a dozen flowers. The large size and fine form of these flowers with their delicate colouring make it a charming plant, though it is not one of those that flower well with little attention. On the contrary, it does not, as a rule, make good growth in our climate; consequently the flowers cannot be produced freely. The colour of the blossoms, which measure 4 in. across, is a sort of mauve-red, but at the base of the woolly-surfaced lip are two large and intensely rich purple blotches, which are a strong contrast to the rest of the flower. Another fine *Dendrobium* sent is *D. Calceolum*, which is likewise a handsome species, having large blossoms curiously beautiful in form. It is, we think, handsomer than the preceding species.

Asparagus officinalis.—Plants of this obtained from the Cornish coast, and growing in my experimental garden, have their stems horizontal, or rather so procumbent as to almost clasp the ground, and, singularly, in contrast with the tall, erect-growing, early *Argenteum* cultivated variety, which last year made growth 8 ft. high, and seems not unlikely at times to exceed it. As the procumbent growth is evidently a natural protection against the injurious effects of wind, it shows the desirability of securing the "improved" plants by stakes, or other artificial means from liability to such injuries. Some of the English authorities describe the wild plant as having an erect stem, but DeCaisne, in his "*Flora des Jardins et des Champs*," identifies it as having the stem horizontal. Perhaps there may be more than one variety known to some of your readers. My plants are all unisexual (staminate).—T. LAXTON, Bedford.

NOTES AND READINGS.

DINNER TABLE DECORATION.—The description of table decoration given a week or two ago in *THE GARDEN* affords an idea of the elaborate character of the work involved in not a few establishments, but it is not by any means the rule to clothe the table with Moss, flowers, and plants in the profuse manner there described. In many of the noted West-end mansions the table decorations are of the simplest description, yet effective enough. It is chiefly a matter of taste, perhaps, but the extravagant use of flowers on the table and their arrangement is but an outcome of the bedding mania in the flower garden, and some of the objections that have been urged against the one might also be urged with equal force against the other. The plan mentioned by "V." of using only one kind of flower at a time is, we believe, advocated on æsthetic principles, and is coming into vogue pretty commonly. It has some advantages, and greatly simplifies arrangement. A table set out with yellow *Marigolds* one would suppose was a rather vulgar conception, but they have been procured for the purpose, and when set off properly with foliage they look, in the light of the burners, as well as any other flower. Indoor gardening of this and other descriptions is excusable in London houses during the season, but in the country it is less so, and in many instances interferes a great deal with the gardener's duties.

INFORMAL GARDENS.—That view of the garden and house at Pendell Court is one of the most charming that we have seen for a long time. It is for the owners of gardens more than their gardeners to study such pictures, and consider how far they could follow the example of Sir George Macleay in adopting a less formal style, and filling their flower beds with subjects of a more permanent character than fitful bedding plants. It wants courage to make the attempt and resolution to carry it out. How many landscape gardeners would have compassed Pendell Court with terraces and intricate flower patterns! But there are none there, and they are not missed in the least. It would almost seem an outrage on good taste to place them there in the present aspect of the place. Any other castle or mansion might stand just as fairly and beautifully in the same situation as Pendell Court; and probably, if all imposing terraces and useless walls were swept away, walls and balustrades broken up, and sent to mend the roads, and replaced by pleasing lawns and natural groups and beds of plants, those who think so much of such gardens now would probably be the first to recognise the improvement. Bedding plants might still be used to promote variety and prolong the display simply planted among the permanent subjects or by themselves; but these are comparatively few, and they could undoubtedly be done without all the year round.

PANSIES AND VIOLAS.—It is interesting to compare these at this season of the year when both are perhaps at their best, for although both, in some situations, bloom from spring to autumn, the first flush of bloom is the best, and the popular *Viola cornuta* furnishes a good example of the disposition of the species in this respect. But much depends on culture. A rich soil and attention to picking the seed pods off as fast as they are produced will greatly prolong the flowering season in localities where it is most wanted. Speaking of comparing *Violas* and *Pansies*, the difficulty is to tell now where the one ends and the other begins, but it is pretty evident, even to the most casual observer, that the

farther we get from the *Viola* and the nearer to the *Pansy* the profusion of flower grows less, while the size increases, and *vice versa*. For hardy border purposes we prefer the mean between the two, as affording not only the greatest quantity of flowers, but the most telling colours. There are richer shades among the *Pansies*, better outline, from a florist's point of view, greater substance and size of bloom, but for bright blues, yellows, whites, and a free habit and hardness, one must have *Viola* blood. Seedlings afford varieties without end, but there is a danger of running into sameness by relying on these exclusively unless "strains" are selected and preserved. Good "selfs" will always be valued in any class of flowers, and in the *Viola* we have some beautiful shades that are well worth preserving and fixing for seed. The *Pansies* are deficient in variety of colour, all the shades, except yellow and white, being too much alike, except in the "fancy" section, which is wrongly named.

ANTI-VIVISECTIONISTS.—We shall wait with interest for the "compassionate Canon Hole's" reply to the plaint of "P. F. C." of Victoria Street (p. 366), but there is no harm in mentioning here that his reverence is currently reported to have been seen perpetrating the most frightful atrocities among "P. F. C.'s" unoffending creatures—the grubs and flies—if he has not actually incited others to follow his example when they found any of these gentry on or near their Roses—that is to say, Canon Hole "squashes" them, as Mr. Fish suggests. I do not suppose any gardener would take pleasure in drawing and quartering a caterpillar or a bug, being pretty well satisfied already concerning their nature and habits, but if he is to be classed with vivisectionists for destroying these vermin on his plants, it may interest the society to which "P. F. C." belongs to know that the Helicore powder season and massacre of the innocents is just about to begin, not to speak of the constant warfare waged by means of Tobacco smoke, liquor, horrible insecticides, &c., against such interesting darlings as mealy bug, scale, slugs, grubs, and beetles, including our *Colorado* friend. Could some means not be taken to punish Miss Ormerod, for example, for aiding and abetting in the "squashing" of the Turnip fly, as well as the vendor of the "Persian flea powder" and other compounds designed to incommode these unoffending subjects and friends of humanity.

PEREGRINE.

Fish nets as protectors.—There is nothing new in using fish nets as protectors, but in these days of cheap glass we are apt to despise these old-fashioned precautions, yet anyone using them once will soon be convinced of their utility, not only as safeguards against frost, but more especially as a screen to break cold, cutting currents of wind. In a season like the present when vegetation is well advanced for the time of year, a double fish net over tender wall trees or any tender crops is a great advantage. Its effect is like that of a hedge in breaking wind currents which are often so harmful to vegetation. Early crops of Potatoes, with a net over them and a few long evergreen branches laid on at night and removed in the morning are quite safe, and many other crops are equally benefited by this slight protection.—J. G. L.

His gardening friends will be interested to learn that "Mr. F. Mile's picture of a girl called 'For Pity and Love are Akin,' bought by the Prince of Wales, and to be engraved by Josey, is in the large room at the Royal Academy, and the picture of the garden at Bingham in room No. 8. The large study of falling water is hung on the line at the Salon in Paris."

EASTCOTE COTTAGE, PINNER.

Such a charming garden as Mr. Kingsmill's, just now teeming with flowery wealth, is a rare exception to the ordinary run of gardens, and teaches much as regards the way in which a garden may be made enjoyable even by simple means. To the lover of hardy plants it abounds with interest, for they are everywhere. Even the trim little lawn, about the only flowerless spot in the garden in summer, is lit up in the early days of spring with myriads of gay coloured Crocuses, which push their way through the turf, flower, grow, and decay before the mowing machine is required. This garden lies within an easy distance of London, but far beyond the reach of its smoke or even the rattle of the railway train. It is surrounded by some of the choicest bits of Hertfordshire scenery, richly wooded, and diversified

suckle (*Lonicera sempervirens*), which one seldom sees outside a greenhouse, but which here is flowering beautifully against the cottage, the scarlet clusters of blossoms being very pretty.

In this little garden may be found a little of everything. It has its rockeries, artificial bogs, aquatic pond, frames, and pits for half-hardy plants, and last, but not least, its little wild garden, to which are relegated all such plants as are apt to encroach upon their weaker neighbours, such, for instance, as the wide spreading *Polygonum cuspidatum*, *P. Sieboldi*, the big Cow Parsnip (*Heracleum*), and others. At no season of the year is a garden like this without flowers; in spring, summer, and autumn they are in abundance; even in the depth of winter and in the earliest of spring days Christmas Roses (of which there is a good collection), winter Aconites, Snowdrops, Meadow

little garden by those who are ever complaining of weeds; here there is no room for them to grow, for every border is so carpeted with low growing plants that weeds have no chance to get a start. That this plan of surfacing the ground entirely with low spreading plants is the best way cannot be doubted, though there are some who contend that no individuality is given to the plants when surrounded closely by other things. Such is not the case, however, if the system is carried out properly, for with care each plant may be arranged so as to tell its own tale, as it were, and yet be closely carpeted with a variety of ground plants. Of course in the case of rare plants, or those that require special looking after, Mr. Kingsmill is careful to place them where their wants can be readily attended to, and where they seem to be most at home, but nowhere in the garden



Eastcote Cottage, Pinner.

by hill and dale. The pretty cottage shown in the accompanying illustration is embowered in greenery on all sides. One wall is almost entirely covered with a fine plant of *Hedera Roegneriana*, one of the very handsomest of all Ivies, having bold, heart-shaped leaves of the brightest emerald green. Part of the south front of the cottage is covered with *Clematis montana*, at present profusely covered with snowy blossoms. A fine *Gloire de Dijon* Rose, now in full bloom, and a *Wistaria* are doing their best to clothe the west side, while in front the walls are covered entirely with *Garrya elliptica* (which in autumn is profusely ornamented with its long graceful catkins), an early flowering *Clematis*, and a fine variegated *Honeysuckle*, while an isolated building is completely embowered with the common *Honeysuckle* in full bloom. Another *Honeysuckle* by the way is worthy of note; it is the North American *Trumpet Honey-*

Saffron, *Snowflakes*, and other plants bestrew the borders, while among shrubs many are winter or early flowerers. With regard to soil, Mr. Kingsmill has to contend with one that is not the best for a general collection of hardy plants, being a stiff, clayey loam, apt to become somewhat water-logged during winter and in rainy seasons. Some things, however, such as *Delphiniums*, *Columbines*, *Poppies*, and the larger types of perennials, do uncommonly well in it. We observe that Mr. Kingsmill makes free use of *Cocoa-nut* fibre refuse as a surface mulching, and the majority of the plants seem to enjoy it; each digging tends to incorporate it with the stiff soil, and so in course of time will make it lighter. Most of the beds, too, are raised considerably above the general level, and have sharply sloping fronts, so as to throw off water.

A profitable lesson may be taken from this

is that system of coddling carried on which, as a rule, results in the death of so many rarities. Some happy combinations of plants we noticed here; for instance, on one of the little lawns are a few beds filled chiefly with *Pansies*, but one has *Tulips* in the centre mixed with the double-flowered variety of the *Meadow Saxifrage* (*Saxifraga granulata*) and edged with a purple *Pansy*—an uncommonly pretty mixture. Another group, several yards square, consists of some well grown and finely flowered purple *Pansies*, from amongst which arise the graceful leaves of English and Spanish *Irises*, which in summer will be aglow with almost every hue.

Some bold and good effects are obtained by grouping the large types of plants so that they make a harmonious whole; as, for instance, perennial and annual *Sunflowers* and single *Dahlias*, a striking mixture, some of the *Dahlias*, especially the beautiful *Paragon*, by the way,

being nearly in flower. Another fine group is formed by a row of tall-growing Delphiniums (huge clumps of the finest sorts) in front of Clematises and Roses, which festoon horizontal chains attached to tall posts, some 10 ft. or 12 ft. apart.

Just now the trees and shrubs, of which there is a good collection of the more uncommon types, have a beautiful aspect. The various kinds of Thorns and Laburnums are in flower. Amongst the latter is the golden-leaved variety, which contrasts strikingly with the purple-leaved Beech and the Barberry, which latter colours much better here than we have seen it elsewhere. The white Broom and a sulphur-coloured *Cytisus* with flowers as large as those of the common Broom are very fine, as is also a large rounded bush of *Genista hispanica*, literally a mass of golden flowers. The Lilacs are past, but the *Weigelas* are very fine; likewise the various kinds of Mock Orange. The beautiful Austrian Brier, whose flowers are among the loveliest yellows we have, is one of the shrubs one cannot pass; the double variety of it is not so fine, the colour being paler, and the form spoilt by the semi-duplication. Roses here are pegged down and make effective beds. To enumerate a tithe of the plants in flower here that interested us would indeed be a task, but we must mention a few of the most noteworthy. *Gypsophila cerastioides* is one that is not much known yet, but no one would regret to add it to their collection if they could see it as it is here. It forms a spreading mass studded all over with heads of tiny white flowers, pencilled with purple. It grows almost anywhere, at least it is not at all fastidious. The fine mass of it here grows by the side of an artificial bog close to some healthy tufts of the Moccasin Flower (*Cypripedium spectabile*), which here apparently finds a congenial home.

Amongst *Aquilegas* the lovely *A. cœrulea* apparently seeds itself, for it is everywhere about the borders, and charming the delicate hued and graceful flowers look; there are evidently some hybrids between it and *chrysantha*, for there are flowering plants exactly intermediate between the two. The scarlet *A. canadensis* makes a good show, and contrasts charmingly with the clear yellow of *A. chrysantha*. These Columbinæ everybody should try to have in their gardens, as they are so different and so much handsomer in colour than the varieties of the common *A. vulgaris*. In a part set aside for American plants are some good tufts of the hardy Lady's Slippers, notably *Cypripedium Calceolus*, a handsome tuft of flowers. In this part the American Lilies are pushing their way through the peaty soil strongly, and the new canary yellow *L. Parryi*, which so few have yet flowered, will be in bloom in a few weeks. It grows well here on a sloping bed of peaty soil. *Tropeolum speciosum* and *T. tuberosum* are two "miffy" plants with which Mr. Kingsmill succeeds well. The first occupies a shady position among Ferns against the walls of the little greenhouse, while *T. tuberosum* has already made good progress in the season's work allotted to it, in covering the low sloping roof of an unsightly stoekhole. The long wreaths of the beautiful *Nasturtium* that Mr. Kingsmill has brought to THE GARDEN office showed well how finely the plant does with him, notwithstanding the fact that it is reputedly difficult to grow successfully. Among other plants in flower are *Sieversia triflora*, a scarce North American plant, not showy, but interesting; *Hycanthus amethystinus*, one of the prettiest of hardy bulbous plants; *Euphorbia Cyparissias*, a very effective plant, having bright yellow flower-heads and graceful feathery foliage, and a very desirable plant to grow; *Papaver umbrosum* is

one of the showiest plants in the garden, and produces seeds in abundance. Its deep, rich crimson cups, marked with jet black spots, make a great show scarcely less gorgeous than the Oriental Poppy, which here asserts itself prominently. *Primula Sieboldi*, though not robust enough to do well in the full open, is grown uncommonly well in a frame, with just the lights to protect it when in flower. It is just past its best, but the decaying flower-spikes show how fine the frameful must have been a short time ago. Another frame plant that attracted us was *Ranunculus Helderichianus*, one of the South European Crowfoots, which has large and handsome flowers of the brightest glossy yellow, and if quite hardy will be worth general culture. Among the rare shrubs is *Jamesia americana*, than which we have not seen a finer bush, it being about 2 ft. through, and covered with clusters of white blossoms. We were pleased to see that the Japanese Maple (*Acer polymorphum*) proves itself hardy here, a bush of the deep red-leaved variety (*atrosanguineum*) being as fresh as if grown under glass. We noticed, too, a good plant of the rare *Xanthocheas sorbifolium*, the beautiful shrub figured in THE GARDEN some six years ago; also *Exochorda grandiflora*, the Pearl Bush, one of the finest of the *Spirea* tribe, and a shrub that should meet with general appreciation.

The little pond (the rustic boundary fence of which is shown in the illustration) affords a quiet place for the queenly Water Lily to display its lovely white blossoms, while the steep banks are clothed with a great variety of moisture-loving plants, to which lately has been added some plants of the feathery-leaved *Ferulas*, which ought to grow well in such a spot. The several pits and frames are filled to overflowing with a variety of plants, chiefly bulbs and terrestrial Orchids which have been collected by Mr. Kingsmill himself in Corsica and Madeira. Already these gatherings have yielded many rare and beautiful plants, including the peculiarly handsome *Orchis Robertiana*, figured a short time ago in THE GARDEN. At the present there are several interesting things in bloom among them, some fine tufts of one of the most beautiful *Oxalises* we have seen, the large flowers borne in numerous umbels, being of a glowing clear yellow, which when the flowers fully expand in the sunshine is very effective.

The little greenhouse is a veritable *mutuum in parvo*, for rarely have we met with a small house filled with such a heterogeneous mixture, yet for the most part in perfect health. At the end is a rustic screen densely clothed with Fern growth of all kinds, principally Maiden-hairs, while various kinds of *Begonia* intermingle with them charmingly. The roof is draped with the feathery foliage of *Asparagus tenuissimus*, *Myrsiphyllum asparagoides*, the variegated *Abutilon vexillarium*, and the beautiful twining *Lygodium scandens*, which all combine to produce a charming effect. Under the stages, the unsightliness of which is taken off by rustic cork bark, are Ferns of all descriptions—*Adiantums*, *Polydops*, *Davallias*, and *Pterises*, including the delicate-fronded *P. scaberula*, the little New Zealand Fern, which everyone should grow for cutting from. A few Orchids are grown uncommonly well in this little structure, chiefly of the cool section. A lovely variety of *Masdevallia Harryana* was in bloom, also *Odontoglossum Halli* (two fine spikes), while strong plants of *Disa grandiflora*, *Odontoglossum odoratum*, *Cœlogryne cristata*, *Dendrobium nobile*, and others fully show what may be done with Orchids under not very favourable circumstances. Among other plants flowering and doing well in this house are tuberosus *Begonias*, the favourite old *Diplacus glutinosus*, and *Tritonia*

crocata and *fenestralis*, two very showy species of Cape bulbs that deserve to be grown extensively for greenhouse decoration. W. G.

FLOWER GARDEN.

HERBACEOUS PLANTS IN FLOWER.

I AM inclined to think that the lists given of these from time to time are to some extent unsatisfactory, inasmuch as nothing is said concerning the size of the garden and other matters which materially affect it. When my friend, Mr. Wolley Dod, gives us his interesting lists, I know, but many perhaps do not, what an extensive garden he has, and how liberally he fills it. Again, Mr. Stevens, of Byfleet, has a large garden; so has Mr. G. F. Wilson, and ample means for filling it, and so with many others. But there are a number of small growers who, in a limited space and with limited means, endeavour to gratify their taste, and these lists are to them very *Vantulus-like*; they tell of a standard to which they cannot hope to reach, because they display means which are not at their command. Perhaps, then, I may not be uselessly employed if I notice from time to time such plants as I have in flower. My house is in Kent; my garden is small; my principal rockery is only 100 ft. long by about 4 ft. wide. Here it is I have my choicest alpine plants. I have several longish borders for herbaceous plants, and along the drive up to my house I have a narrow rock border in which the commoner and more easily-grown plants are placed. My object is to grow a selection of such things as may always afford me from earliest spring (indeed, from mid-winter itself) something to gratify the eye and it may be afford blooms for cuttings for decoration.

During, then, the first fortnight of May I have had in bloom on the rockery a charming little clump of *Ranondia pyrenaica*, which I received three years ago from my friend, Mr. Hammond, of St. Alban's Court, and which sheltered from the sun has grown well, and has commenced flowering somewhat early this year, owing, I suppose, to the mild winter. It will continue in bloom for some weeks. Then there are some large clumps of *Phlox setacea atropurpurea* and *Nelsoni*, the two former giving a rich glow of colour, as does also a good clump of *Aubretia purpurea* (Mr. Ingram's variety), given me some years ago by that worthy and excellent gardener. *Erinus balearica*, with its little white star-like flowers, has clambered over the stones in all directions, and peeping out from it here and there are *Erinus alpinus*, *Gentiana acaulis*, *Primula farinosa*, &c. I see that Mr. Wolley Dod says it does not make itself at home on limestone, but my rocks are Kentish rag, which is a bastard limestone, and to it they cling very freely.

Phlox divaricata is very pretty, but how the slugs and snails do punish it! My plant has hardly a leaf left. *Mertensia sibirica* is a very pretty shade of blue; close by is a good plant of *Aethionema cordifolium*, a lovely little thing with its pink flowers; while *Iberis corneifolia* is a mass of purest white. In a dip in the rockery, where there is more moisture, and where a nice clump of *Cypripedium spectabile* is pushing its way, *Dodecatheon Meadia* and *Jeffreyanum*, and a small plant of *D. integrifolium* have flowered well, and are still displaying their curious blossoms. *Androsace sarmatosa* has also flowered well, and is now sending out its long runners to form fresh plants; while the delicate blue of *Omphalodes Luciliae* is very pleasing, although the number of flowers on the truss being so few tends rather to disappointment. *Saxifraga Wallacei* holds its own against all of its class. *Gentiana bavarica*, not distinguishable in flower I think from *G. verna*, and much more easy to manage, delights me with its intense blue, reminding one of pleasant days on alpine heights, never to come again. Some of the smaller plants would be only regarded as weeds by a great many people, but they are very beautiful for all that; such, for instance, are the delightful little *Veronica repens*, with its very

dwarf foliage entirely covered with its white flowers; *Linaria hepaticifolia*, very pretty, although not so striking as *Linaria alpina*, not yet in flower; *Saxifraga atro-purpurea*, with its soft dense cushion of foliage supporting its bright coloured flowers; *Tussilago alpina*, pretty in its foliage rather than in its flower; *Gypsophila cerastioides*, very dwarf and chaste; *Hutchinsia alpina*, another pure white flower, very small. All these have been profusely in bloom during the period named. *Primula Sieboldii* has quite established itself, and is quite hardy, and its bluish is right to be considered hardy, and its colour is very effective. *Lithospermum prostratum* is in flower, but it has not succeeded well with me. Does it not like limestone or chalk? The foliage assumes a pale and sickly hue, which indicates indifferent health. Flowing over, if I may use the expression, the back of the rockery are masses of *Forget-me-nots*, rock *Roses*, *Ajuga reptans variegata*, which give a pleasing background, and altogether my little rockery has given me and others much pleasure.

Turning to the herbaceous borders, I have had in bloom *Papaver umbrosum*, a very showy Poppy; the seed of this I had from Mr. Wolley Dod last autumn. It was sown in pots and transplanted into the open in the spring, and is now blooming profusely. *Tulipa Gesneriana* is very striking with its tall stems and brilliant flowers, and especially as a background to the double white *Narcissus* and some of the later blooming varieties of *Narcissus poeticus*. A few *Irises* at the back of the border are very fine, but they take up so much room that I can only grow some half dozen. Some of the *Aquilegias* have been, and are, in flower, notably the hybrid variety of *californica* and *pulchella*. The alpine *Wallflower* is a dense mass of the purest gamboge yellow, while the tufts of the variegated *Thyme* are very bright. *Geum coccineum flore-pleno* is a bright coloured flower for the border. *Pyrethrum*, single and double, are just opening their blooms and will be fine during the latter half of the month. *Erodium Manescavi* (an overrated plant) is, as usual, in flower, while *Scilla campanulata* is abundant in any place where it can get a root-hold. *Anthericum Liliastrium* has begun to flower; pretty and chaste it undoubtedly is, but unfortunately it does not open many of its flowers at the same time, and so the spike looks poor.

One piece on my front rockery pleases me very much; the flowers are common, and I have allowed them to have their own way, and a very good way it is. Large masses of *Forget-me-not* and *Sweet Woodruff*, with clumps of alpine *Wallflowers* and rock *Roses* peeping up through them, make a most pleasing group; so does also a mass of *Lithospermum atropurpureum*. There is one large mass of *Veronica prostrata* just coming into flower, which will be very fine shortly. *Dielytras* are just passing away.

I have thus rapidly gone over what I have had in flower during the first fortnight of May, and hope that it may encourage others who are perhaps disheartened by the overpowering lists of large growers, and let it be remembered that if I had given way to the mania (now passing away) for bedding out, I should have had none of this pleasure. My borders would have been bare, waiting for their summer occupants, and my small greenhouse, instead of giving me the pleasure which it has done during the winter and spring, would have been entirely given up to the bedding plants with which it would be necessary to fill the borders. I am no indiscriminate decider of the system; it is admirably suited for our public gardens and for large places, but for small places like mine—no; alpine and herbaceous plants give the most pleasure and for the longest time. Happily, the taste for them is increasing, and it may well do so without indiscriminate abuse of the system to which it succeeds.

DELTA.

novel and desirable feature, and that is it does not bloom; therefore it must be propagated by cuttings or division. It is really a sport from Osborn's lacinate variety, but seems to be always dwarf and tufty. Therefore, with such a habit it should prove a boon to carpet bedders. Like its parent, it is not quite so golden as the old form, or as is Williams' pretty leaved *selskinoide*, but then the yellow in the Golden Feather always seemed to need some toning down, especially as planted in suburban gardens. It is when these le's pronounced kinds are planted with deep greens and reds that their more pleasing hues become effective. I notice that the new golden *Spergula* is being used this year at Heckfield as a margin to *Alternanthera paronychioides*; Mr. Wildsmith thinks it will prove a valuable addition to yellow-foliated carpet plants.—A. D.

LILIUM DAVURICUM.

THIS is one of the earliest and showiest of Lilies, but the typical form of it is far from common; there are, however, many fine varieties of it, which, from their early flowering properties, cheap-

*Lilium davuricum.*

ness, and the success with which their culture is attended, whether planted out or in pots, are grown extensively in many gardens. These varieties are by some classed under the head of bulbiferum, and their close, compact bulbs certainly more resemble those of that kind than the looser and oftentimes jointed scaled bulbs of *L. davuricum*, which should always be handled very carefully, being easily broken. *L. davuricum* is altogether more slender than its so-called varieties; the flowers are frequently solitary, the petals narrower, and, when wide open, star-like. The variety here figured (*umbellatum*) bears on a single stem a large head of blossoms of a bright red colour, shaded in the centre with orange. Besides the above there are others, all of which differ from the type either in habit or colour. Thus in incomparable the blossoms are rich velvety crimson; in *fulgidum* or *Sappho* they are equally rich, but of a lighter and more glowing tint, while in *erectum* they resemble *umbellatum*, except that they are individually more cup-shaped, and form a more compact head. In all of the above the interior of the flowers is more or less marked with black dots, but in *immaculatum*, deep reddish orange in colour, the spots are entirely absent. These varieties are all of easy culture, and thoroughly capable of withstanding severe frosts, provided they are in well drained soil, but in low, wet places they are liable to rot. In planting, the common error should be avoided of placing the bulbs too near the surface, a depth of from 4 in. to 6 in. according to the nature of the soil, being the most suitable.

Within the last few years, these varieties have been largely brought, during the season, into Covent Garden Market, where they meet with a

ready sale. They possess one great advantage over the later flowering kinds, inasmuch as they are in full bloom during what is termed the London season, while *L. speciosum* unfolds its blossoms when the demand for Lilies is to some extent over. The bulbs of the different varieties of *davuricum* are largely imported from Holland, and should be potted as soon as received in good, sandy loam, lightened, if too heavy, by the addition of a little leaf-mould or decayed manure. One bulb may be put in a 5-in. pot, or several together in a larger one, so as to form a mass, but in general potting singly is to be preferred. Place the bulbs at a sufficient depth to be able to cover them with at least 1 in. of soil. This done, set them out-of-doors in a sheltered position, and cover the pots with *Cocca-nut* fibre, leaf-mould, or some such material, removing it when all danger from severe frost is over; but the plants themselves may be allowed to stand out-of-doors till they bloom. The only attention they will need is keeping them well watered. Of course, if a part of them be wintered in a frame, and kept therein till flowering time, they may be had in bloom earlier, and under this system of management a succession will be kept up. Another way of wintering them is to lay them in beds of *Cocca-nut* fibre, and pot them as they start into growth in spring, but although they will flower well the first season, the bulbs suffer much more severely than when treated as just described. The latter method will, however, do for market growers, who only flower them one season and then throw them away. The bulbs should, however, be planted out after flowering, as they will in many cases bloom again the next season, and the majority the year after that. H. P.

HARDY PLANTS IN YORKSHIRE.

ON the night of the 12th and 13th ult. we had here over 5° of frost. *Roses*, Alpine *Rhododendrons*, *Andromedas*, *Spicebushes*, *Araleas*, *Laurels*, *Acers*, *Arbutus*, and many other things were badly damaged, and the sunshine which has prevailed ever since has aggravated matters. At present we are suffering from a long drought; otherwise our gardens are fairly well furnished with hardy flowers. *Trilliums* have been good, though the aspect in which they are growing here is rather too dry for them; *Arnica montana* is grand; *Galax aphylla* is in good form, and sending up many of its naked bloom spikes; *Ranunculus amplexicaulis* has been a subject of admiration for a month past; *Dodecatheons* I never saw better; the early flowering *Gentians*, with the exception of *S. verna*, have done badly as regards bloom, but the later species seem to promise better; *Soldanellas* in leaf soil and in a moist situation have grown well, but the flowers have been sparse; *Roses*, through frost, fly, grub, mildew, and honeydew combined, are anything but satisfactory; the drought of the past week has burnt up the *Irises*. *Linums* have stood the past winter better than heretofore, according to my experience, and now promise well; *Ranunculi* in general are going back from want of rain, otherwise they are good; *Aquilegias* (young plants) are fine; older specimens have a hungry appearance. What a lovely flower is *Lychnis Hookeri*! It bears a single blossom 2½ in. across, delicate rose or flesh colour, deepening in the centre; its petals are three-lobed, deeply and widely divided, each segment being nearly 1 in. long and one-eighth broad, but rather uneven; the tips are sometimes notched and shaded off to a pure white. It has endured two winters with me fully exposed, and it has the appearance of proving perennial. *Helianthemums*, of many colours, are all aglow, and a lovely sight in the mornings; dwarf *Phloxes* are also good, but not so densely flowered as I have seen them. I think the way in which they are relieved by their green parts a gain to their beauty. *Wallflowers* are yet fine in this part of the country.

Ourisia coccinea was never before so well flowered here as it is this season. It is on an east aspect in stiff loam. The various *Tiellias*, *Tellimas*, and *Heucheras* are also in fine form. The

New Golden Feather.—Under the designation of *Pyrethrum aureum laciniatum nanum*, Messrs. Carter & Co. have, at Forest Hill, a new Golden Feather that seems to have at least one

different species of *Iberis* grown near together are not only effective, but their somewhat slight distinctions can there be more easily seen. I cannot get *I. gibraltaria* to grow in my garden; it is hard to explain why this should be, but I have frequently heard of the commonest flowers refusing to grow where large and choice collections were cultivated. Everything belonging to the *Primula* genus not in frames is prostrate from drought, even plantings in north and west aspects. Exactly twenty species or varieties of *Aubrietias* are dazzling. *Anthericum Liliastrium* is chaste and beautiful. *Ononis rotundifolia* is exquisite.

Of the hundreds of *Saxifragas* one scarcely likes to venture to single out particular species, but for good and useful pure white flowers *S. Wallacei*, *S. pedatifida*, *S. aquatica*, and *S. globulifera* are sure to prove acceptable to anyone who has not yet tried them. *S. Wallacei* proves better for wear. Well-established plants, arranged as an edging, are 1 ft. in diameter, and nearly as much in height; the flowers are 1 in. across, and have been abundantly produced since the beginning of March, and they promise to keep good for at least a month longer; they have, moreover, a rich Hawthorn perfume. These plants are in good rich loam, and to prevent their being blown over (being very slender at the collar) they are supported with a rich mulching; and *S. pedatifida*, from its neat habit, good colour and fine foliage, as well as large and pure white flowers, ought, I think, to come to the front. For lofty and handsome panicles of flowers *S. pyramidalis*, *S. lingulata*, *S. longifolia*, *S. nepalensis*, *S. mutata*, and *S. Macnabiana* are of first-class merit. For stately scapes and foliage there are *S. peltata*, *S. hieracifolia*, and *S. pennsylvanica*.

The present dry season is hard on the *Anemones*; still *A. sylvestris*, *A. sulphurea* and *A. decapetala* are good; the last-mentioned I never cared for until this spring, but its numerous straight and well-flowered stems help to make it distinct. The flowers on well-established plants are rich cream colour. *A. coronaria* never does well with me, and I have tried it in several soils and situations. I think the aspect is too dry and sunny. I have lost many species of *Pentstemon* during the past mild winter; it would be useful to know if others have experienced similar losses. We have still plenty of the double and single *Narcissus* in bloom. *Lithospermum*, especially *L. prostratum*, are fine, and *Ranuncula pyrenaica* is lovely. To see the pleasing tints and forms of the *Sempervivum* at the present season makes one wonder why these plants are not grown in every rock garden. *Daphne Neorom* in loam at the base of a small rockwork, with a south aspect, has flowered abundantly for four years. The old-fashioned and true *Bachelors' Buttons*, yellow and white (*Ranunculus acuminifolius* fl.-pl. and *R. acris* fl.-pl.), are richly in blossom, as are also such little gems as *Dryas pedata*, *Houstonia albidiflora*, *Vesicaria greca*, *Oxycarpus*, *Trientalis europaea*, and others.

Kirkstall. J. WOOD.

Myosotis dissitiflora splendens.—Mr. James Allen, of Shepton Mallet, the successful raiser of this plant, informs me that it was not a sport, as some have supposed, but a chance seedling; also, that he has others, and what he considers better and hardier varieties. He certainly deserves congratulation on his success in breaking through the hard and fast lines in which *M. dissitiflora* has hitherto bound itself. We have raised tens of thousands of seedlings, chance and otherwise, and until our supposed white we have never had a divergence of a hair's-breadth from the normal type. The more I see of Mr. Allen's splendens the better I like it, as it succeeds the other nicely, and for some positions its additional stature and size would also prove advantageous. A hardier variety of this species would also be hailed with warm welcome, for there is no denying that in cold situations and during severe winters the true *dissitiflora* is miffy. By the way, it has been stated somewhere that no white *dissitiflora* has yet been raised. Will someone whose practical or botanical knowledge will carry

authority with it state if the white shown, and if I remember rightly, certificated at South Kestington was or was not a veritable *Myosotis dissitiflora* alba? or, as usual, an improved or common strain of the common-enough white *Forget-me-not*, *M. sylvatica*? All that have ever been sent to me for the true *dissitiflora* alba are assuredly the *sylvatica* alba, and I have had scores sent from first to last. Surely the floral committee ought to know.—D. T. FISHER.

Ranunculuses in market gardens.—Although aware that some of our market growers continued to cultivate these beautiful spring flowers, I was not prepared for the really grand display of them, perhaps half-an-acre in extent, that I saw the other day at Twickenham. Mr. Poupart has kindly planted his roots just inside a gateway where all passers-by could get a sight of the flowers, and a most charming sight it has been. The kinds grown were *Turbans*, scarlet and yellow, the yellows having the larger flowers, and as double flowers certainly of the most perfect form. Perhaps the exceeding roundness and perfectness in form which characterises the *Ranunculus* proves to many to be but objections. With many others culture is not an easy matter, but they grow strongly and flower freely at Twickenham. The chief need seems to be a light, free-working soil and plenty of manure; indeed, I should not be surprised if the spot where I saw these *Ranunculuses* growing has often been used for the deposit of manure heaps, and hence it is rich. There were no attempts seen to form beds, as is the common rule; the rows appeared to be about 12 in. apart, and the growth being strong, the ground was fully occupied. Because the *Ranunculus* has so largely dropped out of general cultivation few people comparatively know anything about its culture, and although florists of old have, with that elaborateness peculiar to them, laid down rules and regulations as to culture that are most exhaustive, yet there is little need for special skill if the soil is naturally light and well manured. About the second week in February is considered the best planting time, but the operation must be more or less guided by the character of the season. Shallow drills are drawn, the tubers, with the claw-like roots downwards, are placed in them, about 6 in. apart, and gently pressed into the soil. If the sorts are specially choice, some sharp sand may be thickly strewn in with the roots, but otherwise the soil may be gently drawn over them and levelled down, leaving the rest to Nature.—A. D.

SHORT NOTES—FLOWER.

Seedling Cowslip (*J. Wood*).—Single-ear; probably the result of hybridising. We have not seen such a case before.

Malformed Tulip (*T. J. W.*).—Not uncommon, but nevertheless interesting. The petaloid bracts, normally green, in your case are undistinguishable from the leaves of the perianth.

To destroy worms on lawns.—Some twenty years ago I converted a piece of land which had long been used as a vegetable garden into a bowling green. The turf for it was taken from an adjoining pasture field. After the sods were laid, well levelled with a hard-wood beater, and well rolled, I gave it a top dressing of nitrate of soda. The quantity of land was about 20 perches, and I used 1 cwt. of nitrate, which for that area was a heavy dressing. A few days after it was spread there came a copious rain, which melted the nitrate and washed it into the soil. Next morning I found the whole lawn covered with dead worms, and I never saw a worm in the lawn afterwards; the cost of the nitrate was 14s. 6d. Now whether the previous beating and rolling had anything to do with the destruction of the worms, or the heavy dressing of nitrate was the sole cause, I cannot say. The ordinary dressing of nitrate—1 cwt. or 2 cwt. to the acre—has no effect on worms that I am aware of; but if "T. E." (p. 320) will try the plan all round, he will probably find it satisfactory.—J. A. McMULLEN.

GARDEN FLORA.

PLATE CCCXXIX.—ODONTOGLOSSUM HEBRAICUM.

THIS rare *Odontoglossum* was first flowered by Messrs. E. G. Henderson, of Maid Vale, and is supposed by Professor Reichenbach to be a wild hybrid between the two well-known species *O. crispum* and *O. gloriosum*. The bulb, foliage, and habit are the same as in either of its parents; the spike intermediate, as regards its formation—less branched than *O. gloriosum*, and more so than *O. crispum*. The buds, and also the freshly-opened flower (see flower and bud on the right side of plate) are in formation, and also colour, like those of *O. gloriosum*, but, being expanded a few days, the yellow gives place to white, or is so mingled with it that *O. crispum* is at once suggested as one of its parents. When this plant first flowered it was not thought, even by Mr. James O'Brien, who is well acquainted with *Orchids*, to be a "gem of the first water," but, as something out of the common, it was priced very moderately. Its first essay at flowering at Burford was also moderate, but the following year the plant, without apparently having gained much strength, produced two spikes, one of which is figured on the annexed plate. Although I was well aware that as regards the markings or spots on such *Odontoglossums*, that no two years' flowers are exactly alike, I certainly had no idea that they could vary so much in quality as regards size, formation, and substance as they do in this species. People in possession of weedy-looking hybrids would therefore do well to keep them a year or so, or they will be likely to regret not doing so. The annexed representation of *O. hebraicum* will be much appreciated by lovers of this class of plants, for so many allied forms have sprung up as to defy botanical or any other form of grouping. With this illustration of *hebraicum*, showing clearly the Hebrew-like characters on the side petals, they will have less need to listen to the charming descriptions of those who have an *Odontoglossum* with one-and-a-half more spots than any other. The cultivation of this plant does not differ from that of its two parents. J. C. SPYERS.

Tree Pæonies.—Nothing can possibly be grander than bushes of these Pæonies, either grown as single specimens or planted in groups, and, varying as they do in foliage when a well-selected collection is got together, bushes, even when not in flower, are attractive in early spring and late in the autumn. They make fine plants for the backs of wide herbaceous borders, planted at intervals with flowering shrubs, and they are equally suitable during the summer months for planting in mixed shrubberies, where, when in flower, they have a fine effect. Planted as single specimens upon lawns they also look well, as they can there be seen to full advantage when in flower; besides, they ripen their wood better than elsewhere, having the advantage of the full rays of the sun. When fully matured, they produce plenty of their large showy flowers, of which they are often deficient in shady positions. One of the best situations for them is the American garden, in which they come into flower at the same time as the Azaleas and Rhododendrons, and, being perfectly hardy, they will withstand even severe frost. Plants of them here suffered but very little during the severe winters of 1880 and 1881, and flowered as freely as usual the following springs. We had a fine plant a few days ago, on which there were 130 blooms, all open at one time, its fine large double light rose-coloured flowers producing a fine effect. A large plant of the single flowering variety is just opening its flowers, and being of a light rose colour, with a bright dark crimson centre, they are very ornamental; they measure from 9 in. to 10 in. across. The single flowering varieties last but a very short time



compared with the time during which the double flowering sorts last after opening. The soil in which I find they grow strongest and flower best is a mixture of good turfy loam and peat in equal portions, to which is added a little rotten manure, to give them a good start. There is a number of different varieties, some of which possess most striking colours, and will be found useful in a cut state for filling large vases, or the flowers may be used with good effect singly in specimen glasses on the dinner table.—W. CHRISTISON, *The Rookery, Bromley.*

GARDEN DESTROYERS.

THE TURNIP SAW-FLY.

(*ATHALIA SPINARUM.*)

This insect is the real Turnip fly; unfortunately, however, this name is oftener applied to the small beetle which attacks and is so frequently the cause of great injury to the Turnip crop, whose more correct name is the Turnip



Fig. 1, the Turnip Saw-fly (about double its real size); fig. 2, the Grub (natural size).

flea, or beetle. The grubs of the Turnip saw-fly are called niggers, black grub, black caterpillar, black canker, or black slug, according to the part of the country in which they are found. In some years these grubs are very common, and have often been known to entirely strip a crop of its foliage, leaving nothing but the mid-ribs of the leaves and a few of the larger veins. They are, perhaps, oftener destructive on farm lands than in gardens, but in the latter if they attack a crop they will probably destroy it unless some means be taken to destroy them. Like many other insects, they are not common every year; perhaps for several seasons they will be quite scarce, and then will suddenly appear in large numbers, and be most destructive for a few years, and then again become scarce. This insect is generally distributed over England, and is occasionally found near the seashore in enormous swarms, from which it is inferred that they come to us from the Continent, where they are said to be very common. Many years ago, at Cromer, in Norfolk, they appeared in such swarms, that they were seen to "arrive in clouds, so as to darken the air," and that "they lay upon the cliffs 2 in. deep, and might have been removed by shovelfuls." The late Mr. Frederick Smith, who was a very accurate observer, mentions finding them on the sandhills near Deal in a huge swarm. He says "On nearing the hills, I observed that they were partially obscured by a dense cloud, shifting in the sunlight occasionally, of a light orange tint, and then became quickly of a bright, glittering silver hue as the sun gleamed on the wings of hosts of *Athalia spinarum*. The cloud was borne seaward by a gentle south land breeze." Wishing to bathe, he "plunged into the water, and hoped by swimming from the shore to free myself from their annoyance; but finding that at a distance of

300 yards the surface of the water was covered with them, I returned, and made my way to the west of the hills, where I was free from them." Probably in the cases of huge swarms found near the coast the insects were bred on the Continent; but when found inland, particularly if not in very extraordinary numbers, they have emerged from chrysalides, which have laid all the winter in the ground near where they are found.

To protect crops from insects when they appear in the numbers they sometimes do is very difficult, if not impossible; something, however, may be done, and in the case of the Turnip fly, as the grubs particularly like warm, dry weather, watering the crop well with liquid manure is very beneficial, or even plain water is better than nothing. The watering is best done on a dull day, as the moisture does not evaporate so quickly as when the sun is shining, and it is better for the plants. Strewing ashes, soot, quicklime, or powdered chalk on the leaves is also very useful. Knocking the grubs off the leaves with a light bough has been found very serviceable, for if the grubs are brushed off the leaves while they are changing their skins, an operation they undergo about once in seven days, they are almost sure to die. Turning fowls and ducks among infested Turnips has been tried with great success, as they are very fond of the grubs. Thick sowing is recommended, as there are more plants to bear the brunt of the attack, and the plants growing closer together prevent the moisture, which the grubs detest, from evaporating; therefore, the crop should never be hoed when suffering from these pests. Thunderstorms and heavy rains are most fatal to them, the damp leaves appearing to disagree with them. When a crop has been attacked, after the Turnips have been removed, care should be taken to turn the soil well over, so that any chrysalides which are in the ground may be exposed to the air and the birds, or buried deeper in the earth than they naturally would be. Rooks and other birds are very useful in destroying the grubs, and swallows kill large numbers of the flies. It is very desirable that the flies, which appear early in the season, should be destroyed, as every female will probably lay 200 or more eggs, so that killing a female before she has laid her eggs is equivalent to destroying 200 grubs. Unfortunately there are very few parasitic insects which prey on these grubs, so we do not receive the assistance we often do from them in keeping this enemy in check.

The flies, which are produced from the chrysalides which survive the winter, usually make their appearance in May, but they have been found as early as the latter end of March. There are sometimes three broods in the course of the season, which shows the benefit of doing all in our power to destroy both flies and grubs on their first appearance. The flies are most abundant in July, August, and September, but some may be found in the month of October. The females lay their eggs at the back of the leaves under the outer skin, in slits which they form with their saw-like ovipositor; five or six eggs are laid in the course of twenty minutes, and about twenty on a leaf. The eggs generally hatch in about five days if the weather proves favourable. The young grubs lose no time in beginning their depredations, and soon pierce the leaves through and through with holes. When about a week old they change their skins; they again moult in the course of another seven days, and again when they are three weeks old; they increase considerably in size and voracity at each change of skin. They seem to delight in warmth, often lying curled up on the leaves in the full sun. When many are feeding on one leaf they soon cause it to disap-

pear with the exception of the harder portions. When fully grown they assume a slaty colour, and then soon descend from the leaves and bury themselves in the earth, at a depth of about 2 in., and then form round themselves a silken cocoon. The silk at first is rather sticky, so that small portions of the earth adhere to it. Within this shelter they become chrysalides. The perfect insects leave the chrysalides, which are formed tolerably early in the season, in about three weeks' time, but from those of the last brood the flies do not emerge till the following spring.

The Turnip saw-fly is a member of that very destructive family, the Tenthredinidae, or sawflies, of which I have already drawn attention to several members in these articles, so that it is unnecessary to again allude to the peculiarities of the formation of their ovipositors, &c. The female saw-fly is about three-tenths of an inch in length, and measures rather more than $\frac{1}{2}$ in. across its expanded wings; the females are larger than the males, and their bodies are stouter in proportion than those of the other sex; otherwise they are much alike, and may be described as follows: Head and antennae, black; thorax, dull orange, with two oval black patches, one on either side of the back, which join in the centre of the thorax, and two black marks at the base. The body is of a pale dull yellow; the wings are large, of a slightly yellowish hue, with brownish veins; the front edge of the upper pair is much thickened, and is black in colour. The legs and feet are yellowish, with the tip of the shanks and each joint of the feet black. The grub when full grown is often $\frac{1}{2}$ in. in length, but it sometimes measures as much as 1 in. The first three joints of the body have a somewhat swollen appearance. When young, the grubs are nearly black, with a pale stripe on either side. Later on they are of a grey slaty colour, with a white stripe on either side, and are yellowish beneath with black heads. They are provided with eleven pair of feet, each joint, with the exception of the fourth, bearing a pair. The cocoons are oval, about $\frac{1}{2}$ in. in length, and of a brownish colour.

G. S. S.

FRUIT GARDEN.

SUMMER PRUNING WALL TREES.

This is a good time to prune wall trees of any kind that have been neglected. I never yet saw any ill effects arise from pruning when the trees were in active growth, as cuts made then heal rapidly; and stone fruits may be thinned out to any extent without fear of bringing on gumming and other evils that follow a free use of the knife in winter or spring. In fact, in the case of Peaches, Nectarines, Apricots, Cherries, Plums, &c., on open walls or under glass, I like to do most of the cutting required for the year between the middle of May and the middle of June, as then one can thin out the crop of fruit and all exhausted or fruitless wood at the same time, thereby diverting the whole energies of the tree to maturing the crop, or ripening the current year's wood, as upon that depends greatly the success or failure of the next year's crop.

Apricots, owing to their earliness, should be taken in hand first; as they bear well on the spur system, it is best to leave a fair proportion of spurs on the tree, but not in the way one too often finds them, viz., sticking out like horns a foot or more away from the wall, from which the fruit in that case can receive but little benefit. The first fruit is either borne on the preceding year's growth, or the spurs that have been kept in quite close to the wall. On examining trees but slightly pruned, I find that most of the long spurs have one or more growing buds at the base, though weak through being overshadowed by leaves and shoots at the tips of the spurs. Now, if these old spurs are cut back to these weakly buds, they will quickly

strengthen, and probably be fruitful next year, after which they must be kept close in by timely pinching early in summer. As a rule Apriocots are thickly set this year, but do not be tempted to leave too many. The fruit, if evenly distributed over the tree, should be at least 6 in. apart; the green fruits taken off before the stones are hard make excellent tarts. Look out sharply for the caterpillar or grub that rolls itself up in the leaves; hand-pick and wash the trees frequently. One of the great drawbacks to Apriocot culture is the liability of shoots, and even large branches, to die off suddenly as if paralysed—a branch being healthy, and perhaps full of fruit one day, and the next drooping and dying, and no remedy or very correct explanation of the cause has yet been offered. On this account the fan form of training is most in favour; as soon as a branch fails it is cut out and the remaining ones are spread out to fill up the gap. The spurs of a well-managed Apriocot ought never to project more than 2 in. from the wall; close training is the best safeguard against frost, and certainly produces the finest fruit. In short, show no mercy to long spurs, and rest not until the last one is shortened.

Cherries of most of the dessert kinds, such as May Duke, Black Circassian, &c., grown on sunny aspects, are amongst the earliest of dessert wall fruits, and in some places are highly prized, but unless great care as regards pruning is exercised, they are liable to produce long horny spurs, on which, from want of a supply of young wood they bear, in the case of old trees at least, most of their crop. It is somewhat difficult to get such trees into good condition. But as finer fruit is borne on young wood, no pains should be spared to secure every young pliable shoot, and to remove either partially or wholly a corresponding number of old hard spurs. Prune off at once all fruitless spurs, and as soon as the crop is gathered go over the trees again. Not the least amongst the advantages of having the fruit and foliage close to the wall is the fact that when aphides or other insect pests attack the trees, the engine can be made to act on them much more effectually than when spurs stand out in a semi-wild state. Morello Cherries bear their crop mostly on wood of the preceding year, and any that is fruitless may now be cut out to make room for young growths coming on from the base. We use tough Birch twigs for fastening the shoots to the wall, slipping the ends in behind two stout branches. The Morello suffers much more than any other Cherry from overcrowding; therefore thin out the branches well now; the produce will be large and fleshy, and the trees will require but little pruning next winter.

Peaches and Nectarines are by many considered to be hopeless fruits on open walls, but there can be no question as to the possibility of growing good crops where the requisite time and labour can be bestowed on them at this usually busy season of the year, and no fruit trees that are cultivated are more benefited by judicious summer pruning than these are. Presuming that the garden engine has been vigorously applied and disbudding attended to, both fruits and shoots will now be ready for final thinning. Proceed by unfastening and removing with a sharp knife all fruitless or weakly wood, cutting back to a young shoot of the current year's growth, that will be trained to the wall as the season advances. Be always sure to keep the lower parts of the tree well filled with young wood, the tendency of which is to rush to the top of the wall. An equal balance of leaf-growth is a great point to aim at in fruit tree culture. Keep the engine well plied to encourage growth, which should not be fastened too tightly to the wall for some time to come. Mulch the roots with partially decayed manure, and water liberally when the fruit is swelling.

Plums of various sorts grown on walls are about the easiest of all fruit trees to cultivate. Not being so tender as the preceding, they escape many of the ills from which they suffer, but the same remarks apply as to cutting in the spurs

and training the young wood, as in the case of Peaches and Nectarines. They bear both on spurs and on the preceding year's wood, and the spurs should never be allowed to extend more than from 2 in. to 3 in. from the walls. The Early Orleans, Goliath, Kirke's, Jefferson's, Green Gage, and Coe's Golden Drop are well worth a place on walls as dessert fruits.

Pears are frequently unfruitful on walls, while on espaliers they bear excellent crops; yet we set our losses down to spring frosts. My impression is that the wood is left much too thick and that the buds do not get properly ripened. If the old spurs are left year after year unthinned, they present a solid mass of foliage that keeps the sun's rays from the wall; consequently the more open espalier, or even standard, gets its buds better matured than those on a wall. Try, in the case of a few trees, cutting out half the spurs on which there is no fruit. They will break again at the base, and next year cut out the other half. Plenty of flower-buds will soon be formed. No fruit tree occupies so much space to no purpose as the Pear; a few stray fruits on the points of the shoots, where the wood is free from old, hard, knotty spurs, may sometimes be seen, and that is all. Now is the time to let daylight and the fruitifying rays of the sun in amongst them. With a sharp, strong knife and a small finetoothed saw thin out all old fruitless spray, treat the trees liberally as to mulching and watering, for it is poverty rather than over-richness of soil which renders them sterile. Try this plan at least three years and carefully note the result.

Figs on open walls are greatly benefited by summer pruning. Now, when one can discern which fruits will swell up and which not, the useless wood can be cut away entirely, and the points of shoots that are bearing fruit stopped unless required to extend as leaders, for in the open air it is only the crop that is formed at the tips of the preceding year's growth that is of any use, at least as regards ripening. The leaves of the Fig being large, it follows that the wood must be kept proportionately thin, as it takes all the sun-heat we can get in ordinary summers to ripen the fruit. Therefore all weakly shoots should be removed as early in June as possible. Tie the bearing shoots in lightly to the main branches so that the fruit may get the benefit of sun-heat.

Gooseberries and Currants when grown on walls must have the fore-right shoots pinched at mid-summer, for if left on full length, all the under leaves drop off, and the fruit does not keep so well as when shortened in early in the season. The mulching of the roots of all kinds of wall trees should receive immediate attention, after which a good soaking of water and liquid manure will help the crop to swell, and, above all things, promote clean, healthy growth in the case of young wood that is destined to carry future crops. Keep the foliage clean and healthy, and so disposed by pruning and training that every leaf gets the full benefit of all the sunlight that our climate affords.

JAMES GROOM.

NOTES ON GRAPE-GROWING.

Lady Downes scalding.—All who cultivate Lady Downes Seedling know that it is subject to scalding, but I never heard the cause of that liability satisfactorily explained. Many attempts have been made to prevent it, but I have not yet heard of a trustworthy remedy. My own opinion as to the cause of scalding is that the air of the house becomes heated above the point that the very tender skin of the berry is able to bear at that particular time of its growth. Scalding only takes place during a period of ten days or a fortnight; just as the stoning process is completed; neither before nor after that do the berries scald. Why they should be so susceptible of injury just at that particular time seems difficult to explain, for bunches which are most shaded suffer as much as others more exposed, while other varieties of Grape in the same house take no harm. The Vines under my own management suffer less from scald-

ing now than in previous years, because I aim as much as possible at keeping the temperature at that particular time comparatively cool. I find for that short time that even the Muscat of Alexandria growing in the same house does not take any harm, i.e., if the temperature at night does not go lower than 55°, and on dull days from 65° to 70°. I also take care to secure a circulation of air both night and day, and to reduce considerably the atmospheric moisture, for scalding no doubt takes place through the internal air becoming suddenly heated at a time when it is heavily charged with moisture. My observations apply wholly to lean-to houses; it would, however, be satisfactory to hear how Lady Downes behaves in this matter in span-roof houses.

Shanking.—This is another matter as regards Grape cultivation difficult at all times to account for in a satisfactory manner. Broadly speaking, I shall not be far wrong in saying that it is caused by weak root action, which may result from dry borders, overcropping, or from the roots coming in contact with unsuitable soil. I feel satisfied that where shanking takes place it arises from the existence of one or other of these unfavourable conditions. In my own practice by giving an increased supply of water to the roots, I completely got rid of shanked berries, but I cannot say that the same remedy would under all circumstances produce the same result. No one remedy indeed is a panacea for all cases of shanking; each individual case must, in short, be treated in accordance with the symptoms which it presents.—J. C. C.

Fruits for walls.—How many cottages and villas have boundary walls from 4 ft. to 6 ft. high that, not being considered high enough for choice or tender fruits, are left bare or only planted with some non-productive creeper, while the owners hardly get a dish of fruit at any time of home growth. In such cases would it not be better to have the wall covered with some kind of fruit that with very ordinary care and attention would bear crops instead of wasting one's efforts on tender subjects that seldom produce anything? After trying all sorts of fruits for such positions, I find, taking the average run of seasons into account, it is best to plant walls of this kind with good dessert Gooseberries and Red and White Currants; such fruits never fail to produce a crop, bear well on the spur system of pruning, and are very easily managed. The fore-right shoots should be pinched at three or four joints from the base, for when the leaves on the points get curled up, they make a secure refuge for fly, grub, &c. If caterpillars appear, hand-picking is the safest remedy; but the trees should also be washed with soap-suds. As soon as the fruit colours, put a net over it, and if on a north wall it may be preserved until very late, and will be found to be invaluable for dessert after other crops are over.

—J. GROOM.

Distance between Vine rods.—I am glad to see "J. G. L." advocating (p. 331) the care of the first crop of leaves on the Vine. I have more than once insisted in your pages on the importance of taking care of these, regarding later lateral growth of exceedingly little good to the crop of fruit if it be any use at all when the original or first leaves have perished or been injured from any cause. With regard to the distance between the rods, "J. G. L." is, however, mistaken in assuming that good cultivators generally train their Vines from 4 ft. to 5 ft. asunder, and train the branches to meet between. I do not believe one Vine grower in twenty adopts this practice, except where Pines or other plants are grown under the Vines; nor is it necessary to train so wide; on the contrary, it is a sheer waste of valuable space to do so. "J. G. L." should have 2 lbs. of Grapes to the foot run of his Vines in such wide training, unless he is behind his neighbours, who give less room. I would consent to 3 ft. in the case of strong Vines, but for weak varieties 2 ft. is enough. It does not pay to train much wider than that. It is not the extra amount of space that we have to consider so much as the

care of the shoots and leaves on the Vine, and I am quite sure Black Hamburgs or Muscat Vines with a lateral space 2½ ft. wide have room enough; the shoots being trained about 18 in. apart on the Vine have room to carry as much foliage on the principle laid down by "J. G. L." as will sustain a heavy crop of good fruit if the foliage is kept in good health. This is about 50 square feet of leafage to a Vine 20 ft. long, and surely that is enough for the proportion of crop generally recommended.—J. S. W.

Rusty Strawberries.—A gardener some time ago sent me a few Strawberries from pot plants asking what was the cause of the rusty appearance of the fruit, which was only half ripe. This rustiness is caused by the sun, and is prevalent at this season of the year in hot, sunny weather, where free ventilation is not afforded or a little shade; the last is preferable, and it is also a good plan to turn the plants with their faces to the sun. There is so much light at this season, that the fruit after a certain stage will ripen perfectly well in this position. I cannot say that the Strawberry crop here inside has done worse than in former years, although I hear of many complaints. Indeed, I think I never knew the pot plants fruit more abundantly, except in the case of the earliest batch of Vicomtesse Hérisart de Thury, a number of which produced fasciated flower-stalks that were useless of course. Black Prince did well. Out-of-doors there is abundant promise, but here, too, De Thury has shown an unusual number of fasciated stalks. An odd plant of this variety will do this here and there any season, but there are many this year. I see a note this week on the benefits of "covered soil," another term for mulching. All that is there stated is true, but I fear the paper idea is not a practical one. Strawberries are, perhaps, more benefited by mulching than any other fruit crop, for it causes the berries to swell larger and greatly increases the weight of crop while benefiting the plants for another year. The usual layer of straw put on to keep the fruit clean acts as a mulching, but I never used it. In spring we apply a thick mulching of fresh stable manure between the rows close up to the collars of the plants, and in a short while it is washed as clean as straw by the rains, all the manurial elements having gone into the soil. For some little while we have had dry, sunny days and parching east winds, which coming after battering rains have baked our soil quite hard and dried it as well except between the mulched crops, where it is so sweet and moist that the roots are pushing up to the surface under the mulching. Where stable manure is scarce I prefer short Grass to straw for Strawberry rows.—J. S. W.

Colouring of Grapes.—The persistent removal of the lateral growth from Vines, practised by not a few cultivators, is, I feel sure, a fruitful source of Grapes not colouring well. It is a marvel to me that the restricted conditions under which many Vines are grown Grapes colour so well as they do, and I think it is plain they would not do so were it not for the well-made border and rich feeding which is usually given them. My impression is that it is a mistake to cut off laterals so severely, unless the Vines are young or particularly vigorous. I think it best to let the greater portion of the laterals remain from the time the berries begin to stone until they are ripe, unless it be one or two of the leading laterals near the end of the Vine. It is often necessary to shorten these in order to prevent too great a rush of sap to that quarter. I have not found that a few laterals running about in their own way over the first formed leaves do any harm; on the contrary, I am satisfied they do good by keeping up a necessary amount of activity between the roots and the branches which is not the case when the lateral growth is constantly cut away; and further, I believe that a healthy and active root action is a prime necessity as regards colouring Grapes. This is, of course, assuming that the Vines are otherwise properly managed. If they are over-cropped, or the roots allowed to suffer from want of water, or otherwise mismanaged, the retention of laterals will not wholly prevent failure.—CHEF.

ROSE GARDEN.

RAMANAS ROSE OF JAPAN.

(ROSA RUGOSA.)

A MARKED feature of the present time is a growing taste for single flowers. Dahlias, which a few years ago would have been thrown away because they were single, are now eagerly sought after. Rosa rugosa, a single-flowered Rose, continues year after year to become more popular, and deservedly so, for its large, showy, crimson blossoms, or snow white in the variety alba, are the first among Roses to expand, and a rich succession of them is kept up till late in the summer. Its fruit, too, is large and very ornamental. The white variety is also equally handsome. A good deal of discussion has taken place as to the possibility of obtaining this Rose true from seed, it being asserted that seedlings from it, instead of resembling their parent, were more like those of the common Brier. That, however, to a great extent has been disproved, and probably originated in a mistake, as I have raised a great many seedlings, and in every instance the true Rosa rugosa has been the result. It may be readily struck from cuttings put in in winter in the open ground; or, where an



Rosa rugosa.

established plant exists, rooted suckers may often be obtained. If there, however, are none, and it is desired to increase the stock, bend down a branch or two and layer them, making at the same time a few incisions in the buried portion from which roots will be produced.

ALPHA.

ROSE PROSPECTS.

THESE are not so brilliant as we had anticipated. During the winter we had few or no deaths. This was an experience so rare of late years that it raised our hopes high. But the early growth has assuredly left our Roses much weaker than we expected. How far this is the result of late pruning it is difficult to say. Cutting back this year meant cutting off a great deal of strength as well as wood. The growth already made and lost represented vigour wasted, which could not be replaced. Neither have the succeeding breaks and growths equalled or at all matched the first. All this has a vital relation to the time to prune, which will probably have to be readjusted in future according to the season, and probably altered every year.

Appropos of this, I have heard of some wonderful growths now showing bloom that were pruned

last November. But the Roses have suffered sorely from the terrible wind whippings on the last day of April, and several blights, not-easterly since. These have seared, blasted, given, or pounded the tender leaves in many cases to a pulp. On the heels of the east winds have come, as usual, or at least shown themselves, host of creeping maggots, caterpillars, and even aphides, and these have been busy on the somewhat scant foliage left on the Roses, as if there were not surely enough to damp the ardour of rosarians. Red rust and mildew have also made their appearance; the former is much earlier than usual here, and the latter has seldom affected us much. These have somewhat marred our Rose prospects, and I shall be glad to hear that such *contretemps* are local rather than general. We grow Roses in many places a good way apart; but the symptoms I have indicated are more or less manifest among them all, and it is to be feared that the Rose harvest of this year will prove less perfect than our buoyant hopes and fervent anticipations had encouraged us to expect. D. T. FISH.

Old double yellow Rose (Rosa sulphurea).

IN this age of discoveries and improved culture, have any rosarians learned the art of growing and flowering this Rose to perfection? If so, doubtless their experience and the record of their victories would be welcomed in THE GARDEN. I tried it on a wall for years where it flowered, but would not grow, becoming less and less yearly by year till it disappeared. A note of my loss and failure in THE GARDEN brought a fresh stock from Italy, and now we grow it as a standard, but it flowers sparsely, and the blooms are seldom perfect. It is like, or even worse, than the Souvenir de la Malmaison in the early summer—the flowers a medley of green leaves and coloured petals, the form not unlike a hip turned inside out. A few times at long intervals a model flower comes forth and shows one how superbly beautiful they all might be, and then they suddenly revert into mere abortions; the petals seem huddled and crushed together, as if they had not room enough to expand fully, and either do not open at all, or open in mere hard, irregular masses. All sorts of soils and the utmost possible variety of climate that the country provides have been tried for this Rose with but little success. The best samples I have seen of this Rose have been in Devonshire. But the most hopeless thing connected with its culture is that like conditions by no means produce like results in relation to this fine Rose. Some have held that great age of individual plants is essential to its free flowering, and it seems certain that some old plants have flowered more freely than young ones; but then many old plants have also refused to flower, or flowered in the most useless and erratic manner. If the few readers of THE GARDEN who have managed to grow this fine old Rose freely and flower it well would kindly record their experience in regard to soil, site, culture, whether the plants were budded and on what stocks, or on their own roots, as they mostly are, with any other particulars that may occur to them, they would do us a service. One quality this Rose seems to possess beyond all others—that is, sweetness of leaf and shoot, for no sooner does it appear in the garden than every sort of grub and fly fasten upon and devour it to the utmost of their capacity.—D. T. FISH.

SHORT NOTES—ROSES.

Climbing Roses.—Will some Rose grower kindly give in THE GARDEN the names of twelve of the best Tea and Noisette Roses for training along the wires of a span-roofed greenhouse?—T. M. B., Epsdon.

Green Roses.—I have a plant of Isabella Gray, the flowers of which are green rather than yellow. It is planted out in a border at the south end of a span-roofed greenhouse; all the roots are inside. I should think there have been 300 or 400 hundred buds on this plant, and not one opened properly. I should be glad of some hints as to its treatment from some of your readers, and some explanation, if possible, as to the flowers coming green.—W. S.

INDOOR GARDEN.

GRIFFINIAS AND THEIR CULTURE.

ALL the members of this small genus are lovely and choice; they rank, indeed, amongst the best of bulbous plants, owing to the delicacy and purity of colouring which the flowers present. In foliage, too, they are mostly handsome, and have the advantage of being evergreen. It is this latter circumstance which separates them from *Amaryllis*, a genus to which they are related. That several of the kinds are not more commonly cultivated than they are is surprising. True, they do not increase very fast, and they also require intelligent cultivation; but many things less choice need equal care and attention. Certain kinds are prized for their peculiar blue colour, and all of them for their prolonged blooming season, and for their coming in at a time when such flowers are specially valuable. All of them are store bulbs. When at rest they may be kept in an intermediate house, but although this change of position is to be recommended, it is not essential. Whenever placed for the resting season they should be allowed some moisture, which must be regulated always according to the degree of activity the plants are in. The potting of these plants should always be approached with reluctance; so long as they do well it is best not to disturb them. The roots are fleshy and persistent, so fleshy, indeed, that potting cannot be done without injuring them more or less. In potting, be careful not to plant too deeply; they require to be firmly fixed, but should be well elevated. The best time for the operation is after the flowering season, just when growth commences. Fibrous loam, with a little leaf-mould, forms the best compost, though peat may be added with advantage when the loam is not good and fibrous. All Griffinias like shade, and in stoves in which shrubs are grown in fibre beds, the right place for them is along the margin by the front wall. In potting, it is essential to drain very carefully, and particularly to use pots of the right size, not larger than is necessary. As offsets are produced slowly, it is well to save every seed that is perfected. They are fleshy, and, like some other seeds of a similar character, should not be buried in the soil. If buried they are liable to decay. When germinated, the seedlings may be put into small pots, still leaving the fleshy part of the seeds out of the soil. Certain *Criminus* are raised most successfully in this way, and it is the one to be adopted generally for seeds of the same structure. Let us now note the kinds that have been introduced, all of which are still in cultivation, unless it be *G. Liboniana*, concerning which we have no information.

G. BLUMENAVIA.—This is one of the most charming and freest-flowering of all the Griffinias. Its leaves are $\frac{1}{2}$ ft. long or more; the scape is still longer, and bears from six to eight flowers, each about 3 in. in diameter. The colour is pure white, and every segment except the lowest is traversed by broad rose-tinted veins. It was distributed some fifteen years ago by Messrs. E. G. Henderson and Messrs. Haage and Schmidt, and was figured in *THE GARDEN*, Vol. XIX., p. 528. It is a native of Brazil, where it was discovered at St. Catherine's by D. Blumenau.

G. HYACINTHINA.—This is perhaps the best known species of the genus, and the one that is the most generally cultivated. All its forms are extremely pretty. The scape is about 1 ft. in height with a cartilaginous margin on opposite sides. The flowers are almost sessile. They are blue, and the two upper segments, which converge and are larger and broader than the rest, are the most deeply tinted. This species has long been a favourite. It is a native of Brazil.

G. HYACINTHINA MICRANTHA.—The varietal name by which this plant is known should by no means convey the impression that the flowers are poor. They are of fair size, and some of the finest are quite equal to those of the type. It is apparently a strong grower, and appears to possess a floriferous habit. A bulb 1 in. in diameter has produced three flower-stems. We are indebted to

Messrs. E. G. Henderson for its recent introduction. In their nursery it presents a striking variation as regards colour, every gradation from deep violet-purple to white being observable. Like others belonging to this genus, the blossoms last long in beauty—a decided acquisition.

G. HYACINTHINA MAXIMA.—This is a large form of the ordinary *G. hyacinthina*, and one which may be considered to be an improvement on the type. The upper segments are azure-blue with white rays proceeding from the base. Of this the annexed is an illustration.

G. DRYADES.—This is a very robust species with large leaves, the limb being 1 ft. long by 5 in. broad. The scape is as thick as one's finger, and bears from ten to thirteen flowers of a clear blue-lilac colour, and about $4\frac{1}{2}$ in. broad. It is one of the rarest of Griffinias, and also one of the most desirable. It is a native of the maritime forests near Rio, whence it was introduced by Mr. Wilson Saunders.

or prolonged to a point. The scape is about 1 ft. high, and bears pale blue self-coloured flowers. It is a native of Rio de Janeiro.

G. LIBONIANA.—With this species I am not acquainted. It is said to have narrow, flaccid leaves, mottled with pale blotches on a dark green ground. The flowers are small, of pale ultramarine colour, and the segments are narrow and whitish in the lower part. It is a native of Brazil.

G. PARVIFLORA.—Of all the species this, perhaps, is the least lovely; nevertheless, the flowers are not unattractive. They are of a pale violet colour, and about twelve of them are borne on each scape. It is a native of Bahia.

In making a selection it would be necessary to include *G. Blumenavia*, *G. hyacinthina* and its varieties, and *G. dryades*. R. I. LYNCH.

Daphne Cneorum for forcing.—I can assure "S. D." that this little *Daphne* is an excel-



Griffinia hyacinthina maxima.

G. ORNATA.—This is a very fine species, the largest of all, and valuable on account of its flowering in winter. Its blossoms are white when young tinted with lilac, and grow in spreading heads about 9 in. across. The stems are from 1 ft. to 1½ ft. high, and bear from twenty to twenty-four flowers. It is quite distinct from all previously introduced species; with *G. dryades* it has the closest resemblance, but differs from it in foliage, the leaves having only about twelve nerves on each side of the midrib, while those of *G. dryades* have eighteen or twenty. Moreover, there is considerable difference in form, the leaves of *G. ornata* being narrower and having a convex surface. It is a native of Rio de Janeiro, whence it was introduced by Mr. Wm. Bull.

G. INTERMEDIA.—When this was introduced there were only two species in cultivation, and it happened to be exactly intermediate in character between them. These kinds were *hyacinthina* and *parviflora*. From the first it differs in having a regular expansion of the floral segments, and from the latter in not having the segments acuminate

lent subject for forcing, as, owing to its blooming naturally at an early date, it does not require so much artificial heat as many other hardy subjects do. The great point is to secure healthy plants that have been grown liberally, and to pot them about the middle of October or the beginning of November at the latest. Take care to shield them from hard frosts and heavy rains until the middle of December, when a portion of them may be placed in heat. I do not think this *Daphne* will bear so much heat as *Deutzias* or *Spiraeas*. It rather prefers an even temperature of about 55°. It opens its flowers well when subjected to about the same treatment as one would give to *Camellias*, *Laurustinus*, *Abutilons*, or *Cyclamens*. In a large trade establishment we used to force this fragrant little plant extensively, and both plants and cut bloom always found a ready sale.—J. CORNHILL.

Winter blooming plants.—Will some of your readers kindly tell me how to stock a forcing pit with about six dozen pot plants that will flower during the dull months of winter, and which cannot be grown equally well in a warm conservatory?—F. C. B.

TRANSPLANTING SPRING FLOWERS.

WHERE spring gardening is practised in the same set of beds or borders in which summer bedding is carried on, the plants employed that are required for another season must now be lifted and replanted, or summer bedders will have but a short season in which to grow and flower. This has been the best year for spring flowers that has occurred lately, as, in addition to the hardiest plants that can pass unscathed through any winter, we have had this year many half-hardy plants that have done good service—notably the Brazilian or Chilean Beet, with its brilliantly-coloured leaf stalks, that did duty last summer round large leaf plants as an edging, and during the winter and spring as central groups for beds of ordinary spring flowers. Dell's dark-leaved Beet, too, has been most effective in conjunction with flowering and fine-foliaged plants, its foliage being quite equal to that of *Coleus Verschaffelti*. These Beets are best raised from seed every year, also Wallflowers, Honesty, Silenes, Limnantes Douglasi, Nemophilas, Saponarias, &c.; but the following must be carefully planted in partially shaded positions in the reserve garden, or in spaces between bush fruits. Pansies and Violas of the early-flowering varieties should be planted in lines 1 ft. apart until sufficient cuttings are secured for purposes of propagation; then cut away the old flowering wood, and they will soon develop shoots from the base. They may then be parted, and every piece with a root planted 1 ft. apart. They will make good plants by October.

Myosotis distitiflora is the only Forget-me-not we now rely on for bedding. It must be laid in until leisure can be found to part it, when each piece with roots may be dibbled in beds; they will make nice little stocky clumps for planting, but old plants with long straggling shoots are sure to die off should we have a severe winter. When laid in with flower and seed pods intact, a good many seedlings will soon spring up between the rows, and if pricked out as soon as large enough to handle, they make the best of plants. Seed should be sown at once for early flowering. This Forget-me-not has been the gem of the flower garden for the last few weeks. Primroses and Polyanthus of all kinds must be parted at once; keep them moist and shaded by means of branches of Laurels or other evergreens. We usually plant, at the same time, Stocks and Asters between the lines, as by the time the branches get withered up and removed, the Stocks and Asters begin to give shade, and they make the beds look gay in autumn when the Primroses are at rest. The yellow Hose-in-hose Polyanthus has been the most continuous and effective of the whole family this year, its golden yellow trusses completely hiding the foliage, and producing successional trusses for weeks in succession. *Stachys lanata* and *Santolina incana*, two valuable silvery-leaved hardy plants, have been excellent for lines and silver-white groundwork. If not required for the summer bedding, they must be parted, the flower-stalks cut off, and planted in nursery lines 1 ft. apart; they are readily, to any extent, increased by division. Aubrietias, Arabis, Alyssums, Daisies, Auriculas, and hosts of similar plants may be temporarily laid in some partially shaded position until a more leisure period allows of their being divided and replanted in beds about 1 ft. apart. Seedlings of many kinds will now need pricking out, and cuttings rooting under glass must be hardened off by degrees, ready for finally planting in nursery beds. Plants of a bulbous character, the foliage of which has not yet died down, must be carefully laid in until the foliage ripens off naturally. Small shrubs, dwarf conifers, Yuccas, &c., employed for winter and spring effect, must be planted in beds and kept moist at the roots.

Seeds may be collected and sown of Anemones, Primroses, Polyanthus, Pansies, &c.; the sooner they are in the ground after they are ripe the better. Seedlings of Wallflowers should also now be fit for transplanting from the seed beds into lines 1 ft. apart and 9 in. asunder in the row; if the points are pinched out as soon as they begin to grow, neat stocky little bushes will be the

result. There are now many hardy plants used in bedding that may be termed all-the-year-round plants, and are presentable at all seasons, as, for instance, the various sorts of *Sedum* or *Stonecrop*, the *Sempervivum* or *Houseleek*, several varieties of *Saxifrage*, &c. Where there is a limited quantity of glass, these should be largely grown, as, with a plentiful supply of them for the groundwork, it is surprising what effect may be produced by skillfully contrasting their colours, and introducing a few half-hardy fine-foliaged plants to relieve the monotony of the flat surface. J. G.

Pruning Camellias.—It may occasionally be necessary to prune these with the object of reducing their dimensions, but pruning the plants with the purpose simply "of seeing into them or through them," as stated lately in THE GARDEN, is what I never heard of before. I have been familiar with collections of Camellias as good as any in England, I daresay, consisting of large plants in vigorous health, and I never knew them to be pruned in any way where they had room to grow, nor to need it in the least either to induce flower or promote the ripening of the wood. The Camellia grows very much like a Portugal Laurel, and although I have seen these clipped to make them dense, I never knew them have their branches thinned out. The natural habit of the Camellia is to form a dense bush, and it never looks better than when it is in that form—a mass of glossy leaves all the year round and a sheet of flowers in its season. A bush if well exposed to the light and air will grow and flower in the most satisfactory manner as long as it lives, I should think, and never need the knife. Some of the finest trees I have known were of this kind. The best kind of structures for Camellias are those lofty old-fashioned conservatories, more like barns than anything else, with lofty back walls, a glass roof, and upright fronts. They seem to admit the right degree of light without its being too intense. Twenty years ago a friend of mine put out a number of old Camellia trees in a house of this description, and they soon filled it, the tallest being perhaps 20 ft. high, and quite hiding the lofty back wall to the top. They were pictures of health so long as I knew them, and never were pruned, though they had met and interlaced each other, so that one could not tell where one plant began and the other ended hardly. They formed one grand bank of foliage. Thousands of flowers were disposed of in London from these plants besides what were used at home. Pruning to cause big flowers I do not see the utility of at all. Very large Camellia flowers are not preferred either for button-holes or bouquets, and the smallest are always large enough for such purposes. One of the most popular Camellias grown is Lady Hume's Blush; it is preferred because it is small and neat as much as anything else.—J. S. W.

SHORT NOTES—INDOOR.

Single Dahlias for early flowering.—During this last fortnight I have been cutting dozens of beautiful blooms of Paragon, struck in February and grown on in 5-in. pots in a cool greenhouse.—G. WILLIAMS.

Rust in iron pipes.—Can I do anything to prevent this? The water is pumped from the lake through iron pipes and used for plants, fruit, &c. Can anything be pumped through the pipes to prevent rust and obviate the taking of them up?—J. H.

Boronia serrulata.—F. E. S.—This is still to be met with in greenhouse collections here and there, and it may be procured from any first-class nurseryman. Unfortunately, it is not easily kept in a healthy, thriving state, owing to which probably it has gone very much out of favour of late years, there being now so many plants of equal beauty and fragrance which are far less difficult to manage than this *Boronia*.—B.

Pelargonium leaves.—J. McK.—There is no fungus upon the Pelargonium leaves sent. Is not the discoloration simply owing to the natural decay of the lower leaves, their work being done? One always sees a few fungus threads and perhaps spores on decaying leaves, but these mean nothing; they have settled on a dampish decayed spot where they can grow with more ease than on a dry, firm leaf.—F.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

WITH regret we say good-bye to the Daffodils. The last bunch of double postions is picked this week and arranged in a clear glass with some early leaves, dark and shining, of *Acanthus spinosus*. Foliage of *Bocconia cordata* is useful with many flowers; it grows vigorously and can well spare whole young shoots for cutting. We have it in a large table bouquet of pale pink Columbines, and, cut shorter, with a bowl of pink China Roses; its colour suits most delicate pink flowers. In another large and high bouquet tall spires of *Asphodel* rise above the great ribbed leaves of *Funkia Sieboldi*, with a large white Clematis (*Madame Van Houtte*) arranged between. Other upright-shaped bouquets are of yellow Day Lily, with its own foliage, and of Siberian Iris, some blue and some white, with their own straight sword-shaped leaves. St. Bruno's Lily is beautiful in a glass by itself; rosy pink *Rhododendrons* are with bouquets of *Guelder Rose* in a large gilt bowl. A few sprays of *Choisya ternata* are placed in a blue Venetian glass. Every one who desires to grow the best flowers, both for garden decoration and cutting, should have this lovely shrub; the flowers are better than Orange blossoms, and the leaves brilliant and of good substance. In pots we have *Amaryllis*, pink *Pelargoniums*, and *Epiphyllum truncatum*. Seedling Ferns have been allowed to grow up with the latter; their golden-green fronds suit well with the rosy flowers of the *Cactus*, and also serve to furnish the lower part of the plant, making it a graceful and pretty table ornament.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Gynierium argenteum.—This is one of the noblest and most graceful of all the large ornamental Grasses, but, unfortunately, it is not perfectly hardy, scores of plants having died from the effects of the severe winters of 1880 and 1881; therefore, in such exceptionally sharp frosts a little protection is necessary, and there is nothing better for this purpose than Bracken, worked round about the base and crowns of the plants. In deep, loamy soil this Grass attains a height of from 10 ft. to 12 ft., the spikelets of flower growing even taller than that. The most suitable positions in which to plant it are single specimens in front of evergreens. The plumes of flower are thus shown off to the best advantage. Another equally good position is on the banks of a lake and in large clumps in woods, especially in such spots as can be seen from the windows of the mansion or the walks of the pleasure grounds. It is easily raised from seeds sown in heat in spring, and by division of the roots at the same season.

Sub-tropical plants.—Having finished planting ordinary kinds of bedding plants, sub-tropicals should now be put out without further delay. As to arrangements, necessarily they must be varied according to plants at command, position of garden—sheltered or exposed—and size and shape of beds. My own opinion, confirmed by practice, is that an entire bed of a species looks better than the incongruous mixtures that one sometimes sees; but this is a point that is best settled by each planter for himself. The following were among our most effective arrangements last year, some of which it is intended to repeat this: A large, oval-shaped bed of *Ricinus Gibsoni*, with central plant of *R. Obermanni*, undergrowth of *Gnaphalium lanatum*, and edged with *Chame-pense Casabonne*, or *Green Thistle*. A large circular bed had as a central plant *Eucalyptus globulus*, *Wigandia caracasana* over the whole bed, and an undergrowth of *Salvia argentea* and *Perilla nankinensis* alternated. Another round bed had for a centrepiece a plant of *Solanum giganteum*, next three plants of *Solanum marginatum*, then filled out with *Solanum robustum*, the edging and

groundwork being *Lamium maculatum*. Beds of *Cannas* are planted in mixture, care being taken that the tall kinds have the central places; an appropriate edging plant for these is *Conteaurea candidissima*. *Falms*, *Draecenas*, *Acacia lophantha*, and *Yuccas* look well in mixture, and a bed or two of these is desirable by way of variety. As soon as planted the plants should be staked and the surface mulched; there will then be no risk of a check either from drought or wind.

Herbaceous and mixed flower borders.—These are now very gay with *Pyrethrum*, *Aquilegias*, *Campanulas*, *Delphiniums*, *Geums*, *Peonies*, *Potentillas*, &c., all of which need an occasional overlooking as to ties and supports, the removal of dead flowers and weeds. Any open spaces should be filled up by the planting out of seedling biennials, such as *Wallflowers*, *Sweet Williams*, *Canterbury Bells*, and *Delphiniums*, or, failing these, with *Asters*, *Stocks*, *Zinnias*, and *Everlastings*, and in back part of borders with single *Dahlias*, *Sunflowers*, and *Hollyhocks* for autumn flowering. Bulbous plants that have matured their growth should have their tops cleared away, and if time can be spared for such work—which, unfortunately, is very rarely the case—the bare places thus made should be refurbished by planting surface-rooting *Sedums* and *Saxifragas*.

General work.—This now principally consists of mowing, clipping turf verges, Box edgings, the watering of lately-moved shrubs and *Roses*, and the syringing and washing of the latter to free them from blight, which is this season very prevalent. Keep bedded-out plants well supplied with water, and peg into form all that need such attention. It will be an aid to quicker establishment and more profuse flowering of the plants if the flowers now showing on *Calceolarias*, *Violas*, *Ageratums*, *Heliotropes*, *Pelargoniums*, *Verbenas*, and *Petunias* be picked off, and the straggling growths of the plants pinched back.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Hard-wooded plants.—These in most cases will now be either carrying a crop of flowers or making growth vigorously, and will therefore need proportionately more moisture than in the winter, when they are comparatively dormant. With bright sun and drying winds, moisture gets quickly dried up independent of that which is absorbed by the roots, and where the latter lie thickly packed against the inner surface of the pots, they are sure to suffer if there is an absence of moisture if only for a few hours. *Cape Heaths* potted a short time back must be carefully watered until the roots have fairly entered the new soil; still they must not be allowed to get dry, or the leaves will turn brown. Give plants growing freely, or that are bringing forward a crop of flowers, enough water to support them. The freest growers require most moisture; but all should have sufficient during the active season of growth to keep the roots moving well, being careful never to give any until enough is required to moisten the whole ball.

Winter-flowering plants.—Amidst the many things that occupy one's time at this season it not unusually happens that the winter-flowering stock of such subjects as are annually propagated from cuttings does not get proper attention in the matter of pot room, the result being that the plants through getting cramped at the root do not grow freely afterwards. The different kinds of *Begonia*, *Plumbago rosea*, *Thyracanthus rutilans*, *Eranthemums*, *Sericographis Ghiesbreghtii*, *Salvias*, and others of a similar character should, immediately they require repotting, have prompt attention; the dimensions which the plants are required to attain will necessarily determine the size of the pots they are to occupy at the time of flowering. In the case of most things of a quick growing character, like the different plants under notice, it is not advisable to move them too often; consequently as soon as the young stock has fairly filled with roots the 3-in. or 4-in. pots

they may now be supposed to be in, they may in most cases be moved to those in which they are intended to remain. Much may be effected by the constant use of manure water from the time the soil gets pretty well occupied by the roots, provided there is no falling off in its application; in this way comparatively large, well-furnished plants can be grown and flowered in pots no bigger than would barely suffice to keep them alive without the aid of liquid manure, and if grown under favourable conditions as regards light, they will make stout, bushy growth that will often yield a greater quantity of flowers than larger plants in bigger pots less favourably circumstanced. Attend to stopping the shoots of all those things that require to be so treated in order to insure a bushy condition that will do with the least amount of sticks and ties, which should always be looked upon as necessary evils to be used as sparingly as possible.

Poinsettias.—If some of the old plants that were dried off after flowering were started a short time back, they will now have made shoots large enough for propagating; they should in all cases be taken off with a heel of old wood attached to them; cuttings thus secured will root in a fortnight in a brisk heat, but they must be kept sufficiently close and moist to prevent flagging. If very large heads are required, some of the old stools should be placed in larger pots, say 10 in. or 11 in. in diameter, and grown on with single stems, keeping them all through the season with their heads close to the glass, otherwise they get very tall. Smaller examples will often be found preferable to larger stock grown in the way described; but where there are large stoves to keep gay through the autumn and winter, big plants with their large heads associate best with other things amongst which they are placed.

Euphorbia jacquiniæflora.—Everything necessary to insure free growth should be done with the stock of this most useful winter-blooming plant, for the quantity of flowers forthcoming is dependent on the size and strength which the plants attain, and especially their ability to produce a second crop of bloom. Plenty of light and heat, with a little shade in the middle of the day, are essential to their well-being.

Amaryllids.—Every needful attention should now be given to *Amaryllids* after they have flowered. Comparatively little pots suffice; but still, root cramming must not be carried too far, or the bulbs will not attain their wanted size, and their increase by means of offsets will be less than if more vigour was infused into them. Where additional room is required, give pots an inch or two larger, using good yellow loam if it can be got, in all cases ramming the soil hard in the pots and adding sand sparingly. Keep the stock sufficiently supplied with water at the roots, syringing freely every day to keep down insects, and let the plants be fully exposed to the sun.

Pancratiums, Crinums, and Hymenocallis.—Amongst these many will now be making new leaves; where large spikes of flowers are looked for the plants must have liberal culture, but with these no amount of attention in other matters will compensate for a deficiency of light; yet the foliage of some of the *Crinums* I have found to be less able to bear full exposure to the sun in the middle of the day than that of the *Pancratiums*, which is tougher, but in all cases use no more shade than is found to be requisite to prevent scorching.

Cinerarias.—These, like *Calceolarias*, *Primulas*, and some other plants that used to be all but exclusively propagated from suckers or by division, are now so much improved that varieties good enough for any purpose can be had from seed. Amongst these it often happens that a few plants of unusual excellence make their appearance. In such cases it is well to preserve them. When the seed which they bear is ripe the flower-stems should be cut away and the plants turned out in light soil mixed with vegetable mould, selecting a place where they will not be exposed to the mid-day sun. So treated they will make

abundance of suckers that can be taken off and potted.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

East India house.—Perhaps there are no more interesting, beautiful, or easier grown plants than the East Indian *Dendrobiums*. Most of them have now gone out of bloom and are making their growths, and as these push rapidly from the base of the pseudo-bulbs, new roots also push freely from them, and whenever this occurs any plants that require shifting should at once receive that attention. In doing this all decayed comers ought to be removed without disturbing the roots. Nearly all deciduous *Dendrobies* may be subjected to this treatment, and those that should be in every collection are *D. nobile*, *D. litiflorum*, *D. Bensonie* (this species is always later than the others), *D. Falconeri*, *D. Wardianum*, and *D. crassinode*. In repotting or placing them in fresh baskets, see that the potting material (good fibry peat, sphagnum, broken pots and bits of charcoal) does not cover the young roots, as they like to run out on the surface and strike downwards themselves. The plants will require to be freely watered, as they would be injured if allowed to get dry. If any shoots start from the upright stems they will also root freely. They should be cut off with a portion of stem attached, and be planted in small pans or baskets. They like a high, moist atmosphere while they are making their growths, and up to the time when the growths are completed. *Dendrobium Dalmatianum* and the allied species, *D. moschatum*, are not so much grown as they ought to be; they form noble pendulous spikes, and if the plants are removed to a cool house when the spikes open they will last nearly a fortnight. If left in the warmest house they will not last more than five or six days. They require good supplies of water while developing their spikes. It is not necessary to report them often, as they make the best growths when rather pot-bound. Much artificial heat will not now be required. It is easy to keep the temperature up to 70° with a little air on all night. Atmospheric moisture should be kept regular by means of evaporation from the stages and paths. The young growing shoots of *Dendrobiums*, such as *D. devonianum* and *D. Falconeri*, may be syringed every day to keep red spider in check.

Cattleya house.—There will now be a great wealth of bloom in this house, and it must be kept in good condition as long as possible. A very moist atmosphere, especially if there is little or no warmth in the hot-water pipes at night, causes the flowers to spot. We do not care to throw any water about in this house, say, after three or four o'clock p.m., and if the pipes are kept comfortably warm with sufficient air on all night, the blooms will last a long time if the plants are also kept dry at the roots. Treated in this way, *Cattleya* flowers will last for three or four weeks. *Odontoglossum citrosum* is also in great beauty, but the flowers of this have even a greater tendency to spot than those of the *Cattleyas*. They require much the same treatment. I ought to say that letting such Orchids become comparatively dry at the roots may be slightly injurious to them. *Odontoglossum Roezlii* is also now in great beauty; the flowers of these last well on the plants. As soon as removed, dip the plants in the solution previously recommended to kill red spider and thrips. The same remarks apply to *O. vexillarium*. The different species of *Anguloas* are now coming into bloom, and with the flowers the young growths will be pushing strongly, and also the roots; they will, therefore, require plenty of water. The yellow aphid, which is very troublesome, must be eradicated very speedily on its first appearance, or it will get into the insides of the flowers and will be difficult to dislodge without spoiling them. On *Vanda suavis* flower-spikes are now showing themselves freely. This is a very showy, nay, a grand, species when well clothed with foliage and flowers. It succeeds best in a *Cattleya* house, and when it is found that plants of it retain their foliage in any one part of

the house better than another, and grow more freely, it is best to leave them there. One of the best of the *Acerides* is the Indian Fox-brush, now in flower, or nearly so; its long-branched flowers spikes, usually very freely produced, are generally admired. Its leaves are sometimes infested with thrips, which must be cleared off with soap-water to which a little Tobacco liquor has been added. Greenfly will also get amongst the flowers when they are opening. Brush it off before it does any injury. If the *Sphagnum* is kept in a healthy growing condition on the surface, the plants usually do well. In potting we fill the pots well up with clean drainage; the potting material consists of about equal parts broken pots, charcoal, and *Sphagnum*, finishing off with clean live-chopped *Sphagnum* on the surface. The temperature of the house will range about from 60° to 65° at night.

Cool house.—The largest proportion of the choice *Odontoglossums*, such as *O. crispum*, *O. cirrhosum*, *O. pescatorei*, &c., will have now passed through the flowering period; of course, some are yet in flower, and others will bloom at intervals through the summer, the great value of *O. crispum* being its tendency to produce flowers all the year round. We have had plants which produced fine, strong spikes for three or four years in succession, and out of a dozen plants we had some of them in flower every month in the year. After flowering so freely for that period, the strain upon them seemed to be too much, for they did not make strong growths, and produced very weak flower-spikes for the next two or three years. The question is, should not the plants be prevented from flowering so continuously, especially when the flowers are allowed to remain on them until they fade? I think they should; the ultimate result would be more satisfactory. *Odontoglossum vexillarium* will flower itself to death in a period of four years, or at least become so exhausted, that the plants are not of much value afterwards. We have a few plants in this house that ought to have been potted early in the year, but for several reasons they did not receive that attention. These will be seen to at once, or if they cannot be potted before May is out, perhaps it will be better to leave that operation until the autumn. The beautiful *Oncidium macranthum* is quite a feature in the cool house; its large golden flowers are so different from those of any other kind. It seems to like a good supply of water when making its growth, and the slugs are particularly fond of the young roots which are formed above the surface of the compost. The flowers are now opening on some of the plants, but as a rule this species does not flower until the end of June or July. Every night the plants ought to be looked over for slugs or small snails.

FRUIT.

W. COLEMAN, EASTON CASTLE.

Cherries.—When the fruit on the early-forced trees is ripe, keep a free circulation of air through the house and damp the floors and walls every day, but discontinue wetting the foliage in near proximity to the fruit, which must be kept perfectly dry. If the house is light and bright, and it is thought advisable to keep the fruit in a plump condition for a considerable time, it will be necessary to shade lightly when the sun is very powerful, but shading must not be overdone, neither must it be left on the roof where it is not wanted, otherwise the fruit will soon mould and perish. The best shade of all for ripe Cherries is the tree's own foliage, and to insure this, great care should be devoted to stopping, tying in, and regulating the young growths, so as to have a regular spread over every part of the house. This remark applies to permanently planted trees, as trees in pots, which soon leave off making much growth and only form spurs, can be removed to other houses, or even a dry airy fruit room at pleasure. When all the fruit is gathered, good syringing will be necessary, and if the root-lights are portable they may be taken off the house without delay, while pot trees may occupy a light,

open, but sheltered situation in the open air where the roots can be protected with Fern or litter to economise watering, and the heads can be washed with the engine to preserve the foliage and keep it free from insects.

Plums.—If Plums and Cherries have been grown together, the difficulties which I have often pointed out will now be felt. All goes well with these two valuable additions to our early dessert until Cherries, which come in quickly, begin to ripen, and it then becomes imperative that we find fresh accommodation for one or the other, hence the importance of growing the Plums or Cherries in pots or tubs, and as either of them submits to pot treatment, the choice is a matter which may be governed by circumstances. If the two are only divided by a glass partition, then the Plums may have more heat than would be good for Cherries, provided a liberal supply of air be admitted, and the swelling of the fruit is helped forward by early closing on fine afternoons. Continue the regular syringing of the trees until the fruit begins to change colour, using clear, soft water, or water which will not deposit sediment, for the purpose. Mulch permanently planted trees, and water copiously with tepid water, but avoid producing a too gross habit in vigorous young trees by feeding before they begin to feel the weight of the crop. Top-dress pot trees with rich materials, and feed with good liquid at every watering. Stop all strong and surplus growths at the fourth or fifth leaf, and guard against overcropping, particularly where the best late kinds, like Golden Drop, are expected to become very fine, and to hang on the trees for a considerable time after they are ripe.

Pines.—A long period of bright dry weather having been highly favourable to sharp forcing without the aid of over-heated pipes, early started Queens have made rapid progress, and successions are throwing up clean vigorous shows, as is generally the case after a mild winter. In the fruiting department, maintain the temperature ranging from 70° at night to 85° by day, and give moisture in proportion to the amount of fire-heat required. Also, keep the evaporating pans regularly charged with water, to which strong liquid or a pinch of guano may be added twice a week, and lightly dew the plants over with tepid water after closing, and when the axils of the leaves become dry. If not already done, see that each fruit is properly secured to two sticks, with cross ties for keeping the crowns upright. Rub off all gills and offsets, and reduce the suckers to one, unless the stock is scarce, when two may be left without robbing the fruit. As the greater portion of the September potted plants will now be showing fruit, increase the supply of stimulating liquid, and if not previously done make them firm in the pots by placing pieces of fibrous turf round the stems. If any have missed fruiting, draw them out and submit them to a month's rest by plunging in a bottom heat of 75° with a free circulation of air. Disperse with fire heat as much as possible; let the temperature range from 65° at night to 80° by day; discontinue overhead syringing, and only give sufficient water to prevent the roots from feeling the ill-effects of drought. Keep successional plants growing on without a check until the pots are well filled with roots. Pot up small batches of suckers at short intervals, and divide the whole stock into small sections where a continuous supply of fruit is expected from a limited number of plants.

Vines.—Gradually reduce the temperature in early houses in which the Grapes are quite ripe, and maintain a fresh, healthy atmosphere, by damping the floors, and by giving just enough gentle fire-heat to admit of a free circulation of air. Cleanse the foliage with clean water as the Grapes are cut, and stop any extra strong growths to encourage a general break of laterals all over the Vines. Succession houses in which the fruit is now colouring may have more air whenever the weather is favourable, and a nice circulation throughout the night will be highly beneficial to the Vines, particularly where they have been hard pressed and perfect finish is doubtful. If Madresfield Court Muscats are growing with the

Hamburg, see that the roots at the time they commence colouring are in a nice growing border, neither too wet nor too dry. Mulch well to keep in moisture, as moisture after the skin is set causes many of the berries to crack, and allow all the laterals to grow to their full extent until after the fruit is cut. It will then be necessary to shorten back, and give more water to plump up the buds. Look over the main crop of Muscats, also the choice late kinds intended for autumn and winter use, and if any of the berries show signs of remaining small, let them be removed while there is yet time for those properly fertilised to fill up the weakest parts of the bunches. In the selection of the bunches of Gros Colman and other sorts intended for bottling always give preference to medium-sized taper bunches of good outline, as they generally set well and keep better than larger clusters through which the air cannot pass so freely. Persevere with thinning the latest crops as they become ready. Mulch and water the inside borders as soon as this tedious operation is finished, stop gross laterals where they are likely to rob the fruit and weaker growths, and then help them along to the stoning period with plenty of heat, air, and atmospheric moisture. Notwithstanding the fact that a very early spring was contemplated, my latest house of Hamburgs is later than it has been for some years. This is an advantage in one respect, but a great difficulty arises when the time arrives for ripening up the wood, as we are obliged to give more dry fire-heat than is good for the fruit, and we have not yet attempted to prove that a shrivelled berry is better than a plump one. If late spring planting has not been finished free young Vines from this year's eyes may be put out up to the end of this month with every chance of their filling the trellis. Two points are essential to success: the borders should be made inside the house, and the temperature of the compost should not be less than 70° when it is placed in contact with the roots. For this kind of planting Vines struck in sods of turf are preferable to those which have been grown in pots.

MARKET FRUIT GARDENS.

J. GROOM, LINTON PARK.

GOOSEBERRIES are now one of the principal crops requiring attention, not only as regards gathering and marketing in a green state, but also as respects warding off the attacks of caterpillars which have for the last few years been very destructive. In plantations in which they were allowed to strip the foliage off unchecked last year there are very few Gooseberries to gather this season. Hand-picking, dusting with Hellebore powder, fresh slaked lime, and other remedies, such as placing under the bushes sacks smeared with tar on which the caterpillars are shaken, are being used. A good crop of Gooseberries, even at a moderate price per sieve, is a very remunerative one as the yield per acre is very great where the land has been well treated. Small starved berries on bushes that look yellow and make hardly any young wood are useless for market; large berries grown quickly on bushes that look deep green in colour, owing to high feeding at the root, are the ones to pay. The rich manurial mixture that comes down in trucks or barges when applied to Gooseberry bushes in winter, soon shows its effect when the active growing season comes round, especially on poor light land where roots are plentiful. A neighbouring fruit grower, having such a plot, gave a portion of it all the night soil and sewage he could collect for miles round in the winter, applying it liberally all round the bushes, and one can see at a glance how far it was applied. Where good rotten farmyard manure can, however, be obtained there is probably nothing to surpass it as a winter dressing forked in lightly about the roots. It is a common practice to grow bush fruits under standard Apples, Pears, Plums, &c., and thus situated they do very well for a few years, but if really first class bushes are wanted to yield annually heavy crops, there is nothing like letting them have the

land to themselves. On good land, planting them 9 ft. apart each way is not too much space. Red and White Currants should now have the tips of the growing shoots pinched off, an operation which greatly helps the swelling of the crop, and assists the buds on the spurs to swell up and ripen well for next year. There is at present a great quantity of caterpillar, fly, and other pests on fruit trees and bushes. Washing with soft soap dissolved in water so as to make a mixture like strong soap-suds, and applied with force from a powerful engine, such as is employed for washing Ho pine, is the usual remedy in this part; even if the foliage gets partially destroyed by vermin the chance of next year's crop is gone, as well as the present one, that invariably drops prematurely if the foliage is injured to any extent.

Hoeing by manual labour, or scarifying with a horse or pony is now being actively carried on, for, in addition to the need for destroying weeds, the production of a mellow, friable surface-soil is of great benefit to the growth of both trees and bushes. Large, heavy horses are not required for the operation; a pony, or even donkey, will draw a light set of hoes set in a frame, and, with a careful driver to avoid injury to the trees, a large amount of surface-soil may be stirred in a day, and as the trees or bushes are planted in straight lines each way, there is very little ground left unstirred, except close to the stems, where a man following with a draw hoe completes the work.

Grafted trees require frequent attention, for where growing strongly the trees will need loosening before they cut the bark. As soon as the shoots get long enough to sway about with the wind they must be staked on both sides and loosely tied with stiff bast; this will keep them from snapping off. Trees grafted last year will now need divesting of all shoots produced by the stock, so as to concentrate the energies of the tree in the grafts; take them off close to the stem with a sharp knife. Espaliers and wall trees, whether on farm buildings or other walls, should have all surplus shoots pinched back to three or four leaves while they are yet soft, removing all curled or blighted foliage, and washing the remainder with soft soap or Gishurst compound, consisting of about 4 oz. to the gallon.

KITCHEN GARDEN.

R. GILBERT, BURGHEY.

THERE is no operation in this department so useful or so profitable as mulching. We are now busily mulching Peas, which it renders independent of the weather; it keeps the ground beautifully moist, smothers all weeds, and forms the finest path possible to walk on to gather the produce. Spring Cauliflowers are also mulched, and so strong and healthy are our plants, that after the heads are cut they send up strong offshoots, which in due time form small heads just the size for table. We are now sowing a north border with Peas, mostly trial varieties, including some fine dwarf seedlings from Mr. Laxton. Hoeing the land among all growing crops is the very life of vegetation. On the 9th of this month I had my acre of Ashtop Potatoes hoed all through, and the difference in their look now and before they were thus treated is truly surprising. Onions have come well. No more early sowings for me. This spring is, of course, an exceptional one, but during the last six my Onions have always turned yellow, occasioned by the sharp cutting east winds. I now sow them in the last week in March. It is a great mistake to sow small seeds outside early; they come up weakly, get stunted, and generally end in failure. Young Broccoli and other plants now making their appearance will be much benefited by being slightly damped the first thing in the morning and dusted over with a little soot and dry sand; small plant beetles play sad havoc among them, except such attention is paid to them. Sowing Lettuces (White Cos) on the Celery ridges where they have to stand is a step onwards. I never grew such fine

examples of Lettuces as those sown with the Onions and allowed to stand and come to maturity; in fact, this practice of sowing seed where the plants are to stand is creeping slowly, but I hope surely, to the front. The very fine sample of Brussels Sprouts exhibited by Mr. Wildsmith, and treated in the manner I try to describe, speaks volumes as regards the desirability of doing likewise. Of Broccoli, we are now cutting very fine specimens of Cattell's Eclipse. Proof of the statement that late Broccoli is not required when spring-sown Cauliflowers can be had by the end of April has not yet reached me, and until it does I shall continue the good old plan of growing late Broccoli.

NOTES OF THE WEEK.

NEW PICTURE GALLERY AT KEW.—We are informed that the new gallery of pictures representing tropical vegetation, painted by Miss Marianne North, who has presented the collection to the nation, will be opened to the public on and after June 8.

MESSRS. JOHN WATERER & SONS, of Bagshot, will again exhibit their Rhododendrons in the gardens, Cadogan Place, Sloane Street; the exhibition will be on view throughout the month of June, and a more than usually varied and grand display is expected, on account of the present being a most favourable season for Rhododendrons.

CRENKOWSKIA KIRKI.—This highly attractive stove plant, of which we gave a coloured illustration last year, is again in flower in No. 7 house at Kew. Though at present not so fine as last season, it is still, however, very handsome, the rich rose-pink of the large blossoms being more like the delicate tones of such Orchids as *Odontoglossum vexillarium* than any other plant we know. It is a free grower, and remains in flower throughout the summer.

BOMAREA CONFERTA.—This new species of Bomarea, which is said to be very beautiful, will shortly be in flower in the nursery of Messrs. Shuttleworth & Carder, Park Road, Clapham by whom it was originally imported. Though probably the first flowers will not show the beauty of the plant such as we may ultimately expect, they will at least give an idea of the nature of its colouring and decorative value.

VIBURNUM PLICATUM in POTS.—This Guelder Rose is a capital subject for pot culture, for even in a small state (a foot or so high) it bears numerous heads of snowy blossoms. At the Vineyard Nursery, Hammersmith, Messrs. Lee have it largely under pot culture, and the specimens now in full beauty in that nursery are extremely pretty. Thus cultivated it may be had in flower considerably earlier than in the open air, for it bears forcing into flower early, and lasts a long time in perfection.

FABIANA IMPERICATA, an old-fashioned shrub, now in flower against one of the open walls at Kew, is a very neat and pretty plant, reminding one of some of the finest of greenhouse Heaths rather than a member of the Solanum family, to which it belongs. In growth and foliage it is like a Heath, and the long tubular white blossoms are arranged all along the branches for nearly 1 ft., so that a good sized plant is very showy. Though a native of Chili, it is quite hardy even away from a wall, and it is a plant that deserves general culture.

COLUTEA HALEPICA is a very handsome shrub, one of the finest in the genus. The flowers are large and showy, being of an orange-red colour, and having a conspicuous yellow blotch on the dorsal petal, which is called the standard in Pea-shaped blossoms. There are some fair sized bushes

of it in the Kew Arboretum now laden with blossoms. It is one of those flowering shrubs that one ought to buy cheaply in nurseries. It is the same as C. Pocockii.

FRAGARIA INDICA as a hanging basket or pot plant is a very elegant object just at this season, when its long pendulous slender branches are laden with bright red fruits about the size of those of the Hautbois Strawberry, though quite insipid in taste. The small yellow flowers are borne at the same time as the fruit, the two making a pretty combination. We saw it used with excellent effect in a greenhouse in Mr. Peacock's garden, Sudbury House, Hammersmith, where it is grown well in hanging pans.

ARNERIA GRIFFITHIANA.—The second species of Arneria that has come into cultivation is this one, now in flower at Kew. It even rivals the beauty of the better-known A. echioides, of which we gave a coloured plate last year. Griffith's plant is of about the same stature and bears its flowers in a similar manner. The latter are rather smaller, but the yellow is brighter, and the spots are much larger and darker; hence the blossoms are more attractive. But for all that A. Griffithiana is much less important than A. echioides as a garden plant, as it is only an annual, while the latter is a good perennial and perfectly hardy.

ECHINOGERIS PECTINATUS.—It would be difficult to accurately describe the extreme beauty of this succulent plant when in flower, its colour being so lustrous and bright. In Mr. Peacock's collection there are some plants of the variety rufispinus, one having the whole surface of the globular stem densely covered with stellate spines of a reddish-brown colour. The flowers are produced from the top of the stem, and are some 3 in. or so across, and of a fine magenta colour, shining in bright sunshine with an iridescence rarely seen in flowers. It is certainly one of the most beautiful of all the Cactaceae family, and one that well merits cultivation even in gardens where no speciality is made of this class of plants. At Mr. Peacock's it thrives well in a warm dry greenhouse on shelves exposed to the full glare of the sun.

THE FRUITING DUCKWEED (Nertera depressa), when well cultivated and thickly studded with its bright orange berries, is really a little gem among decorative plants, but some little skill and attention are required in order to attain perfection. About this time of the year it looks at its best, for now the foliage is fresh and green and the berries at their brightest. It is now largely used in London for what is termed "furnishing." For this purpose it is extensively and admirably grown in our large nurseries, though some seem to succeed with it better than others. In the Vineyard Nursery, Hammersmith, we lately saw a large quantity of it, each pot being literally surfaced with bright berries. Here it is said to need close attention just at the season of blooming in order to get a good "set" of berries.

ALLIUM PEDEMONTANUM.—This beautiful alpine bulbous plant is now in flower in the collection of hardy bulbs at Kew, among which it stands out prominently from all the rest of the Alliums in point of beauty, or indeed any of the other bulbous plants now in bloom. One would scarcely take it for an Allium, being so very distinct from the rest of the cultivated kinds, with the exception perhaps of one or two of its nearest allies. It has slender foliage and flower-stems from 6 in. to 12 in. high, each of which terminates in a drooping, dense umbel of well-shaped flowers of a lovely reddish purple colour. It makes a beautiful border or rock garden plant, and remains long in perfection, even in a cut

state. It is a plant with which no one would be disappointed, for it is of the easiest culture in light warm soils, and though perfectly hardy, is an excellent subject for pot culture. Contrasting with the Piedmontese Allium in point of colour, there is at Kew some fine tufts of the lovely white *A. subviratum*, the kind that is sent to Covent Garden Market so largely in a cut state, also a new one called *A. Ostrowskianum*, which is similar to *A. acuminatum* or *Murrayanum*, but finer than either. *A. falciforme*, a curious little species, is likewise in bloom.

LINUM FLAVUM.—Rarely have we seen this bright yellow Flax so fine as this year, particularly a large plant (nearly a yard through) in the herbaceous ground at Kew, where the light warm soil is evidently favourable to its well-being. No doubt the exceptionally mild winter has done a good deal to make it so fine, as it is liable to be injured by severe cold. When well grown and flowered, no brighter hardy plant exists, and no plant is more attractive. There is a little confusion with regard to these yellow Flaxes, but the one we mean is that having a woody base and glaucous spoon-shaped leaves. It forms at Kew a dense rounded mass completely laden with flowers as large as a penny-piece.

A NATIVE ORCHID.—Enclosed you will find a beautiful little growing, *Cephalanthera ensifolia*, which I found growing here. I think it must be very rare, as I have never seen it elsewhere. I discovered it five years ago, and very delighted I was when I saw it. It grows on a hard dry bank. I was wondering if I could get it to grow in my garden, but there is so little of it (only seven plants), that I have never attempted to remove it. Do you think I might try a plant of it?—JOHN HARPER, *Amick Lodge, Dregburn, Ayrshire*. [A graceful native Orchid, as pretty as some of the smaller forms of the finer tropical genera. It is found from North Scotland to Sussex and Hampshire. Better leave it where it is; we have never seen it established in a garden.]

A BEAUTIFUL NEW STOVE PLANT is *Exacum macranthum*, belonging to the Gentian family and a native of Ceylon, whence it has been recently introduced to Kew. We were much struck with its extreme beauty when we saw it in flower the other day in one of the stoves, being so unlike the generality of stove plants. This specimen is about 1½ ft. high, has a few slender branches, each terminated by a cluster of blossoms, closely arranged, and which open successively. The flowers, which are 2 in. across, have five broad petals of an intensely rich, deep indigo-blue, overlaid with a satiny lustre. The centre is bright yellow, as is also the cone-like mass of stamens, which form a strong and beautiful contrast to the blue petals. Not much is as yet known as to its culture, as Kew is the only place, we believe, in which it has been grown, but probably it is similar to that of the beautiful *Lisianthus Russellianus*, also one of the Gentian family.

GERANIUM AZALEAS AT MARLFIELD.—One of the sights of this locality at present is the large beds of these here—some, planted fifteen or sixteen years, perfect masses of bloom, and others more recently planted out in the pleasure ground on a gentle southern sloping bank on the edge of the Suir form a good succession to them. They seem to luxuriate in the rich, deeply made soil of peat, Sphagnum, decomposed tree leaves and Grasses obtained from the slopes of the opposite hill. The colours are rich and wonderfully varied, from deep red and pink to white and yellow, with variations of cerise, maroon, orange, rose, and many of them, as

white and rose, white and orange, with the colours softly shaded into each other. It is not easy to imagine anything grown outdoors requiring so little care so beautiful and brilliant. Those beds are not merely brilliant now; they are also utilised effectively for *Lilium auratum*, &c., for blooming later—a practice I submit deserving imitation.—W. J. M., *Clonmel*.

SHOWY PHYLLLOCACTI.—The genus *Phyllocactus* probably contains more species adapted for general cultivation than any other among Cactaceous plants. Some half dozen of them are really valuable plants. We lately had an opportunity of comparing them side by side in the rich collection of succulent plants in Mr. Peacock's garden at Sudbury House, Hammer-smith. Here all the known species of *Phyllocactus* are represented, and all, or nearly all are in flower. They are characterised by flattened stems, from which are produced numerous large and showy blossoms, that open in succession for several weeks at a time. Among the finest in this collection are *P. Jenkinsii*, *Acramanni*, *multiflorus*, and *Imperator*, all with brilliant deep scarlet blossoms of large size, while another called *Imperatrice* is more rosy and very beautiful. *P. crenatus*, also in flower, has very large blossoms of a yellowish white colour, very distinct and handsome, and *P. phyllanthoides* has numerous small flowers of a salmon-pink. These plants are all of easy culture in an ordinary greenhouse, provided the house is not too much laden with atmospheric moisture. The length of time during which they continue to flower renders them highly desirable. These and other equally showy Cactaceous plants are among those that the present race of cultivators seem to ignore, though in times gone by they formed one of the most striking features of our metropolitan exhibitions.

HOYA PAXTONI.—All the Hoyas in gardens bear flowers more or less beautiful, but this one is, we think, one of the finest of all, being not only lovely in bloom, but extremely graceful in habit. Notwithstanding this, however, the sight of a well-grown and flowered specimen of this *Hoya* is a rare occurrence. We were, therefore, pleased to meet with it in fine condition in Mr. Peacock's garden, at Sudbury House, Hammer-smith. Here a large plant of it growing in a suspended pot in a moist stove is at present a beautiful object. It is liberally furnished with pendulous branches, each of which terminates in an umbel of from six to ten blossoms. The latter measure ½ in. across; the corolla is five-angled, pure white, and of wax-like texture, while surmounting it is a crimson star, set, as it were, in frosted silver, the two colours having a charming effect. A near ally to this beautiful plant is *H. bella*, also in flower here, but which is a stouter and less graceful plant. *H. Paxtoni* is certainly a plant that ought to be grown everywhere where a moderately warm and moist stove exists, for everybody admires its delicately beautiful blossoms, so unlike ordinary flowers.

ROYAL HORTICULTURAL GARDENS, SOUTH KENSINGTON.—The number of visitors admitted on Whit Monday, at 2d. each, was 11,158.

Mr. Thomas Moore.—We have the pleasure of recording, and it speaks much for the esteem in which Mr. Thomas Moore is held, that last week a very important testimonial, comprising a substantial gift of money and of plate, was presented to him at a dinner at the Cannon Street Hotel. The proceedings were of a pleasant character, and showed that Mr. Moore's long services to gardening had won him the gratitude of his fellows. The ferocities of which the art of engraving is capable were very well illustrated in portraits of our esteemed friend published in two of our contemporaries last week. The public who

do not know Mr. Moore will receive a curious impression of his character, we fear, from these prints. To be saved from falling into the hands of the "woodcutter" may some day become an essential part of life's endeavours. To have worked hard whether in the cause of Ferns or one's fellow creatures is no reason why one should be "handed down to posterity," as in the sketches referred to.

SOCIETIES.

THE MANCHESTER FLORAL FETE.

THIS was opened on the 29th ult., and continued open for a week. In almost every respect it is one of the richest and best shows ever held at Manchester. The Whitsuntide shows, under the energetic management of Mr. Bruce Findlay, the curator of the gardens, are telling events in the horticultural progress of the age. The Great International Fruit and Flower Show last autumn has never been equalled; and it was the general opinion of those most competent to judge that the show opened last Friday week was at once the most richly varied, and brilliant that has been seen in England. Just sixteen years ago I first had the pleasure of meeting Mr. Bruce Findlay, in the council room at South Kensington. We were both fired with the same ambition—the advancement of provincial horticulture. I succeeded in making the Royal Horticultural Society take and keep the lead for a few years in holding a great show in the provinces, and thus opening up for it a new career of usefulness. The dates on which the great shows fell at Bury St. Edmunds and Manchester were likely to clash, and Mr. Findlay, anxious to avoid this, sought an interview with the council on the subject. The latter body rather pooh-poohed the idea of any of the doings at Manchester affecting their great show. But to-day, and for many years past, I venture to affirm that the Manchester Botanical Society is doing as much or more for the advancement and popularisation of horticulture as the Royal Horticultural Society, and while the latter, which never took kindly to its provincial work, is now about to lose its garden, the Manchester Botanical Society is rebuilding its houses and daily extending its well-merited influence and power. It is impossible to over estimate the elevating and ennobling influence of such a great centre of light and leading in the midst of our manufacturing industry. Manchester, through its botanical society, its beautiful parks, museums, pictures, free libraries, and noble public buildings, is certainly doing its best to link art and beauty to profit and utility, and of all the potential influences at work in this direction, assuredly the most powerful is Whitsuntide floral fêtes which extend through the week, and are visited by thousands and tens of thousands of the working classes.

Doubtless the Orchids were the grandest feature of the show. It is doubtful if ever such plants of *Odontoglossum vexillarium* had been seen before anywhere. There were several specimens of this—no doubt made up, but made up with such skill—as to look one only, with between 200 and 300 blossoms on them. Such *Dendrobies* as *Wardianum*, with 300 flowers; *clavatum*, with 150; *Jamecianum*, with over 50; *Masdevallia Harryana*, with 70; *Cattleya crispata*, *Warneri*, *Mossie*, and others, *Laelia anceps*, *Vanda tricolor*, *Odontoglossum crispum*, *O. cirrhosum*, *Angulosa Clowesi*, &c., laden with their glorious blossoms and pictures of perfect health were sights to see—but once, probably; but to be remembered and admired ever afterwards.

Next to the Orchids were the splendid *Clematites* shown by Mr. Jackman, of Woking. His twenty plants were models of culture and training as well as of the best varieties. They were trained on globular trellises, and it is hardly too much to affirm that the surface was covered with the huge flowers, not only to the hiding of the trellis, but to the covering of the leaves; the flowers ranged from 6 in. to nearly 1 ft. across. These *Clematites* occupied a raised bank at the end of the large

iron-roofed tent, in which were the magnificent groups of plants for effect—Heaths, Rhododendrons, Roses, and other plants, yet there was nothing so extremely showy as the Clematises. Mr. Smith, of Worcester, showed a lot of twenty that would have seemed fine but for Mr. Jackson's wonderful specimens. Among the finer varieties were the Duchess of Edinburgh, choice double white; *lauginosa candida*, Blue Gem, Miss Hope, Mrs. Moore, Princess of Wales, Lady Caroline Neville, Fairy Queen, Sensation, Lawsoniana, Alba Magna, Mrs. Hope, Gloire de St. Julienne, Duke of Teck, Duchess of Norfolk, Otto Froebel, and Madame Page.

The plants arranged for effect were remarkably well done. Messrs. Ker, of Liverpool, and Messrs. Cole & Sons, of Withington, being the chief exhibitors in the nurserymen's class, taking the prizes in the order here named—Messrs. Rylande, Agnew, and Schloss being the competitors among amateurs.

The stove and greenhouse plants were remarkably well shown, the finer specimens being *Stephanotis floribunda*, a complete globe of bloom, an enormous *Erica Cavendishii*, a perfect ball of gold; the crimson and white *Clerodendron Balfourianum*, a huge mass of the *Anthurium Scherzerianum*, *Bougainvillea glabra*, *Apelexis macrantha purpurea*, *Azalea Holfordi*, *Dracophyllum gracile*. Fine-foliaged plants and Ferns were also remarkably well done. Seldom have finer Crotons been seen or a richer variety than those gathered together at Manchester. *Pelargoniums* in the different sections of show, fancy, and zonal were well produced. Roses were not numerous, nor *Azaleas*, but the want of these was compensated for by the prodigal profusion of *Rhododendrons*, hardy and greenhouse, the Messrs. Fisher, Son, and Sibray, of Sheffield, filling a large portion of a tent with an extremely rich and varied collection of the latter. Messrs. Waterer, of Bagshot, were the chief exhibitors of hardy *Rhododendrons*. Those who delight in hardy plants had much to please them in the wonderfully well-done collections of *Pansies* in pots, and the well-filled classes for hardy herbaceous plants. Among the latter we noticed the pretty *Myosotis Weirleighii*, *Saxifraga MacNabiana*, the alpine *Edelweiss*, the yellow *hardy Cactus*, *Opuntia Rafinesquiana*, *Verbascum phoeniceum*, *Spiraea palmata*, white and common form of the American Cowslip, *Decadanthodon Jeffreyana*, *Cypripedium candidum*, *Phlox subulata*, *Silene acaulis*, *escapula*, *alpestris*, *Saxifraga muscosa*, the variegated Lily of the Valley, the St. Bruno's Lily (*Anthericum Liliastrium*), *Phyteuma comosum*, *Lilium Kramerii*, &c.

Bouquets and dinner table decorations were shown well at Manchester. There were seven competitors in the dinner tables for twelve, and most of them were well done. The one fault, and it is one difficult of cure, is overcrowding. There is an excess of glass and of flowers as a rule, though several of the tables, especially that of Miss Williams, of Holloway, possessed the three great merits of simplicity, freshness, and lightness. Mr. Cypher, of Cheltenham, was first with a centre of the elegant Palm, *Cocos Weddelliana*, supported with sprays of Orchids and Maiden-hair Ferns. The two end glasses were elegantly furnished with sprays of the seldom-seen *gloriosa superba*, *Spiraea japonica*, *Eucharis amazonica*, climbing and Maiden-hair Ferns. The front was not overdone, and the finger-glasses prettily filled. The third prize table had a profuse display of Orchids, but the judges, who were ladies, justly preferred lightness of touch to mere costliness and rarity of decorative material.

The groups of new and rare plants were also choice and numerous, prominent among them being new Ferns, Crotons, Pitcher Plants, &c. In the rich and rare collection of Mr. Williams, of the Victoria Nursery, Holloway, the rich blush white *Amaryllis* Mrs. Garfield, the small white *Azalea* Miss Beust, and the strikingly rich-looking *Anthurium Andreanum* are likely to have a useful and brilliant future.

Some capital fruits were shown for the season. It would be difficult to show at any season finer Grapes, Peaches, Nectarines, and Figs than those exhibited in the first collection of eight dishes. Black Grapes were also well shown, and were far superior to white, in the latter class two indifferent bunches of the Duke of Buccleuch carrying off the first prize from hardly ripe samples of Foster's Seedling.

Some good Melons were shown, the samples being Best of All and two others unnamed. Though the former were good, an unnamed single fruit, very much like the scarlet strain of Queen Emma, was certificated as the best Melon in the show. Strawberries in pots were remarkably well and numerous shown, nearly all the exhibits deserving prizes, though that was impossible among so many. Altogether, the show—horticulturally—was a brilliant success.

A list of the chief prizes and prize-takers will be found in our advertising columns.

FLOWER SHOW IN PARIS.

THIS show, which was open from the 23rd to the 30th ult., was in all ways successful—in short, one of the best ever held in Paris. It took place in the building known as the Pavillon de la Ville de Paris, in the Champs Elysées, the ground for it being laid out by M. André. M. Chantin, the well-known nurseryman, was awarded a first prize for an important assortment of Palms of different kinds. Amongst the best exhibits were the *Gloxinias* of M. Duval, of Versailles, which were both well grown and flowered. M. Blen, the Caladium raiser, had also a good group of these plants, but not so attractive as that of last year. Orchids were shown by two exhibitors only. MM. Thibaut and Keteleer, of Sceaux, had *Plumina fragrans*, *Cymbidium Lovianum*, *Ada aurantiaca*, *Trichopilia crispata*, *Odontoglossum vexillarium*, *penitens*, *Roezlii*, *Pescatorei*, *cirrhosum*; *Oncidium concolor*, *Cattleya Mossiae*, *Warneri*; *Cypripedium Boxallii*, *Lawrenceanum*, *villosum*; *Aerides japonicum*, *Epidendrum vitellinum majus*, &c. M. Lademann had in his group *Leila purpurea*, *Angulica Clowesi*, *Cattleya Skinneri*, *Aclandiae*; *Yandea tricolor*, *Oncidium concolor*, *Masdevallia ignea*, *Harryana*; *Saccolabium curvifolium*, *Burlingtonia venusta*, &c. MM. Chantier frères, nurserymen, of Montfontaine, staged some very fine Crotons, amongst which were the following varieties, especially suitable for furnishing, viz., *Baronne James de Rothschild*, *Bergmani*, *latimaculatus*, *Chantierii*, *Baron Sellière*, *Montfontainensis*, *Truffautii*, *muscaus*, *Droueti*, and *Princesse Mathilde*. The same firm showed also some new plants, such as *Dracena Lindenii*, *Aralia Chabrierii*, *Alcocala Thibautiana*, *Anthurium Andreanum*, &c. M. Albert Truffaut, of Versailles, had a good miscellaneous group of fine foliaged plants, consisting of *Anthurium crystallinum*, *Dracena Goldieana*, *Lindenii*, *Baptisti*, *amabilis*, &c. M. Moser, of Versailles, had some good *Rhododendrons* and *Kalmias*, while MM. Croux et fils, Vallée d'Aulnay, staged a large quantity of *Kalmia latifolia*, *myrtifolia* (well flowered), *Azalea caucasicas*, and *Rhododendrons*. In the large tent, J. Margottin fils showed specimen Roses in pots, which were much admired. The same exhibitors showed also forced Grapes. M. Millet had forced Grapes and Cherries. M. Lemoine, Angers, a striking lot of red *Dracenas*, his own seedlings, and very good they were. The *Asparagus* growers of Argenteuil came in strong force with very large examples of that esculent; also Strawberry Dr. Morère, a very fine kind.

Sutton's Late Queen Broccoli.—I quite agree with all that has been said in favour of this valuable Broccoli. I consider it to be the best late Broccoli in cultivation; it does not come into use all at one time, but continues over a long period even where the demand is an every-day one. During the last three seasons it has been very valuable here. We finished cutting from it on May 25, which is a fortnight earlier than last season. In the winters of 1880 and 1881 it with-

stood the frost better than any other kind.—J. CROOK, *Farnborough.*

Early Cauliflowers.—A good deal has been written of late as to when these ought to be fit for use; also as to the best method of producing them, i.e., whether they ought to be sown in autumn and kept through the winter, or sown in heat in January or February. When people talk of having them fit for use in April, surely they must grow them under glass, or call buttons Cauliflowers. It has often occurred to me that a few points want clearing up before we thoroughly understand the term early Cauliflowers. Are they to be grown as an open border crop that is with protection sufficient only to keep them from being destroyed by frost? or are they to be kept constantly under glass? If the former, at what time are they to be sown? and can those who advocate January or February sowing produce them as early as those sown in autumn and with the same small amount of labour and accommodation? Moreover, do we not want Cauliflowers before May, seeing that good Broccoli may be obtained till that time? If any Broccoli withstands the frost it is the late sorts; therefore where is the gain in having Cauliflowers so too early? Herewith I send two heads for you to try in order to see if they are strong or rank in flavour; they are from a border from which we commenced cutting on May 20. They have not been grown on a bed of manure, nor under glass since February last.—J. CROOK, *Farnborough.* [The heads in question were in every way excellent.]

Spotted Cucumbers.—*C. F. B.*—There is a small fungus growing on your Cucumbers named *Gleosporeum*, and this no doubt hastens their injury or destruction. Other species of *Gleosporeum* grow upon Apples, Peaches, Nectarines, and other fruits. It is, however, probable that the Cucumber plants are first of all out of health from some cause, the fungus attacking weakly individuals. The plants are frequently weakened by attacks from minute microscopic worms derived from the soil, and it is probable that if, in the first instance, these worms were destroyed the fungus could not make its attack. It is impossible to give any reliable opinion as to the cause or possible remedy without being fully conversant with all particulars of the case.—F.

Large Apple bloom.—The enclosed was gathered from a spur of an espalier Apple tree growing in the gardens here. Is it not of uncommon size and beauty?—W. S., *Stockbridge.* [Yes; it was semi-double, and measured upwards of 2 in. in diameter.]

THE name of the landscape gardener in the Madame Patti affair being the same as that of our firm, an impression exists, we find, that we laid out the defendant's pleasure grounds. Will you, therefore, be kind enough to state that we are neither connected with, nor related to the firm in question, nor have we ever been employed by Madame Patti.—WILLIAM BARRON & SON, *Elston Nurseries, Dorvansh.*

Medinilla.—*Rus.*—S. c. p. 163, Vol. XX.

Names of plants.—*J. H. J.*—1, *Cephalanthus grandiflorus*; 2, *Opuntia muscicaria*; 3, *Acacia anthracophora*; 4, yellow form of 3.—*W. R.*—1, *Hyocyanus niger*; 2, *Veronica genitoides*; 3, *Campanula glomerata speciosa*; 4, *Weigela sinensis*.—*J. S. W.*—*Populus canadensis*.—*S. D. R.*—Apparently *Niphetos*.—*J. W. Berkeley*.—*Hibiscus Rosa-sinensis* fl.-pl. (a sport from the single form).—*Z.*—3, *Abutilon Boule de Nègre*; 6, *Sparmannia africana*; send larger and better specimens of the others in flower if possible.—*R. V. & Sons.*—*Silene alpestris*.—*H. C. Haller*.—1, *Adonis vernalis*; 2, *Anemone alpina*; 3, *A. Halleri*.—*J. Roberts.*—*Alcacia viscosa*; *Berberis nepalensis*.—*F. E. S.*—*Boronia serrulata*.

COMMUNICATIONS RECEIVED.

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No. 551. SATURDAY, JUNE 10, 1882. Vol. XXI.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

AN UNSAFE TREE.

THE destruction of the Elm trees in the parks during the past year and for many years, indeed, has been of such a nature as to make one doubt the wisdom of planting this tree extensively. The common English Elm is a very fine object when well grown, but its fragile character makes it a dangerous tree. As long as we can remember Hyde Park and Kensington Gardens, trees broken off the way the Elm does just 12 ft. or so from the ground have been a characteristic feature of these parks. To these headless giants a great many trees have been added during the past winter and spring. A very fine and vigorous Elm that stood at the head of the Serpentine has given way during the present year. It was distinguished for a meadow-like growth of twigs all along the main stems—a beautiful form of tree. It is not in the London parks alone the Elm suffers, but everywhere throughout the country,—in the valleys, among the Berkshire downs, on the Welsh hills, in the midland counties, and in the Surrey valleys—everywhere during the past autumnal gales the common Elm has been blown down in great numbers. The question is, Is it worth while planting so extensively a tree which cannot be depended upon to stand a gale of wind? Other trees at the same time suffer and stand. It is also a dangerous tree to have near buildings. In the late April gale and during the past six months we have seen quite a number of railings and walls destroyed by the falling of Elm trees. Anything more undesirable to be near a house, cottage, glass, or outbuilding does not exist.

NEW PICTURE GALLERY AT KEW.

THIS, one of the greatest attractions ever added to the Royal Gardens at Kew, was opened to the public on Thursday last. It consists of a collection of oil paintings, some 600 in number, representing the characteristic floras of almost every quarter of the globe. Every picture has been painted on the spot by Miss Marianne North with consummate artistic skill and with marvellous truthfulness; she has beneficently placed as a free gift to the nation the entire collection, together with the building that contains it. The gallery—a handsome structure—is situated near the entrance gates opposite the temperate house. The principal room is 50 ft. by 25 ft., and around the four walls Miss North has herself arranged her pictures with much taste, each country's vegetation being grouped by itself, so as to convey at a glance its leading characteristics. Almost every quarter of the globe has been visited by Miss North, from the lofty peaks of the Himalayas to the Antipodes in the Old World, and from the prairie regions of North America to the depths of the Brazilian forests in the New. The only continent not visited is Africa, to which she intends to shortly repair on a similar mission. The pictures embody a wonderful range of variety in vegetation, and nothing seems to have escaped the keen eye of the artist. For example, on one wall hangs a picture showing the ponderous boles of the Mammoth trees in the Mariposa Grove, California, and near it a representation of the seaweed (*Sargassum vulgare*) so plentiful in some parts of the Atlantic. On every picture there is that

delicacy of touch which only a true lover of Nature can produce. There is no formality or anything approaching it, and to one well acquainted with plants the gallery is intensely interesting; it not only contains a host of plants already in cultivation, but also many not yet introduced that cannot fail to be welcome to our gardens.

Lovers of Orchids will find their favourites represented as they appear in their native haunts, and at the same time they may have the satisfaction to see that they can be cultivated to as great or even to a greater state of perfection than the plants attain naturally. Even the cultivator of hardy flowers may be gratified by seeing such beautiful illustrations of the flowery wealth of North America and California; in fact, there is scarcely a class of cultivated plants that is not depicted faithfully in this gallery. In some paintings Miss North places before us the plants life size and in bold relief against the clear azure tints of a tropical sky; in others the same plants are in miniature, as a foreground to a beautiful landscape, while others are grouped together in a charming manner. The depths of primeval forests are sometimes the theme of the artist; at others a beautiful stretch of plain country, a fertile valley with its tropical luxuriance of vegetation, groves of forest trees and glades of Ferns, and sometimes choice glimpses of well-kept gardens in the Tropics. These are all interspersed with groups of cut flowers, arranged with exquisite taste, each displaying its own peculiarities in a charming manner. Insects, birds, and interesting small animals enter into the composition of a good many of the pictures, and one called the "Possum up a Gum tree" is especially interesting.

The countries of which the flora is represented by these pictures are Teneriffe, Brazil, Jamaica, North America (United States and California), India, Ceylon, Borneo, Singapore, Java, Japan, New Zealand, and Australia. The pictures are arranged *seriatim*, according to the foregoing list, and an excellent catalogue of the whole exhibition has been compiled by Mr. W. B. Hemslley. Over the entrance door the magnificent Victoria Regia that beds the still rivers in South America, and now happily some of our largest aquaria, is portrayed in her majestic beauty, and is by far the finest picture we have yet seen of it. Among the paintings of the vegetation of Teneriffe are some admirable representations of the Dragon tree (*Dracæna Draco*), though not the famous one that till within a comparatively few years ago stood at Ortoava. A view in the Cochineal Gardens is instructive as well as interesting, as it shows how the little insect is cultivated for the sake of its crimson dye. The Cherokee Rose (*Rosa laevigata*) is shown beautifully with the Peak of Teneriffe in the distance. It is a charming Rose, larger than the Macartney, and should be common among us, as it must be hardy, seeing it is a native of North America.

Among Brazilian plants the first that strike one are the beautiful little *Sophranitis grandiflora* and coccinea, the first particularly fine, with brilliant scarlet flowers, of a size rarely equalled in our Orchid houses. The recently introduced *Eichornia* (*Pontederia*) *azurea* is shown charmingly, but poorly flowered compared with what we grow in our stoves. A species of *Vellozia* has a splendid flower, being large and of a delicate purplish blue, and would be a great acquisition if it could be introduced. Some species of *Cattleya* are shown beautifully, likewise *Lælia purpurata* as it is at home. The avenue of Royal Palms (*Oreodoxa regia*) at Botofogo, Brazil, is a quaint sight, but, withal, imposing, and near it is a splendid representation of *Roupellia grata*, which, though cultivated, is far from

being so well grown as it ought to be. Perhaps this fine illustration of it will incite cultivators to grow it better. In the Brazilian group are many familiar garden plants which may be recognised at a glance. And every gardener will be attracted by a magnificent head of the *Poinsettia pulcherrima*, the *Flor de Pasqua* of the Brazilians. Though so large and fine, it is the smallest inflorescence the artist could find, and she has caught the true glowing vermilion of the bracts.

Jamaican plants are not so numerous; among them is a splendid *Erythrina*, which would be welcomed to our gardens. The gorgeous *Billbergia zebrina*, shown life-size, makes a fine picture, and creates a desire to see it as finely grown in our stoves. Those who possess the *Spathodea campanulata*, a *Bignonia*-like plant, but cannot flower it, may, perhaps, find some little gratification at seeing what a grand thing it is in its native dress, and the same with several other beautiful plants, including what appeared to us to be *Bougainvillea spectabilis*, which some find so difficult to flower under glass in this country.

To the North American group a great deal of interest is attached, many of the plants being familiar to us. The autumnal tints of the foliage in Virginian forests is vividly portrayed in all their refulgent splendour, and the Californian "big" trees only seem to impress upon us more deeply what mere pigmies our largest cultivated specimens of them are compared with these ponderous giants. The cut flowers in this group are particularly attractive, especially a vaseful of Californian flowers, among which we may recognise many that have lately come into cultivation. It is somewhat surprising that such a beautiful Dogwood (*Cornus Nuttallii* (No. 204), with flowers like a large white Clematis, has not been introduced, for it surpasses any other of the genus. A group of insectivorous plants is admirably shown, though the specimens are not finer than are grown in the gardens at Kew; various studies of tree growth are included in this group.

The flora of India is next in the series, and the splendid Himalayan *Rhododendrons* are shown to perfection in life-like beauty, particularly *R. argenteum*, *arboreum*, and *Aucklandi*. The Coniferae of Northern India have been the subjects of various studies besides various other kinds of forest trees. The sight of a picture of the blue Poppy (*Meconopsis Wallichiana*) as it appears at home will be interesting to cultivators of this plant who complain of its lack of brightness and beauty; though whether it can be expected to be under cultivation like the picture is another matter. Several choice glimpses in botanic gardens are worthy of notice, as are also a series of paintings of the sacred plants of the Hindoos, which include several in cultivation in English gardens.

The Bornean group of plants is a highly interesting one, as it contains so many representations of those tropical plants so highly prized by cultivators. First and foremost we must note the handsome Pitcher (*Nepenthes Northiana*), named in compliment to the artist. The sight of the picture of this beautiful plant induced Messrs. Veitch to send a collector specially to Borneo to collect living plants of it, which, happily, was carried out successfully but, probably it will be some years before we see such fine living Pitchers as those represented here. Various other species of *Nepenthes* are represented, including excellent portraits of the well-known *N. Rafflesiana*. One picture shows colonies of *Nepenthes* in a juvenile stage, and Miss North says that in some parts of Borneo these seedling Pitcher plants are so thick that they form the turf. The pictures of tropical fruits, such as the Durian

Mangosteen, and others, are the subjects of various pictures in the group. Such gorgeous tropical plants as the *Amherstia nobilis*, *Poinciana regia*, and various others are shown admirably, and make one wish one could more often flower them in our gardens. A species of *Wormia*, a beautiful shrub, makes a very fine painting, and it is to be hoped that W. Burbridge, which Mr. Burbridge discovered and introduced, will turn out to be the same plant. Some very fine Orchids are in the Bornean and Javanese collections, besides some splendid *Crinum*s, including *C. angustum* and the new *C. Northianum*, which bears large heads of beautiful white flowers.

Passing on to the Japanese group, we notice a good many representations of familiar plants, and the pictures of well-kept Japanese gardens are likewise noteworthy. New Zealand and Australian pictures finish the series, and these are, for the most part, very interesting and beautiful. Proteaceous plants, such as *Banksias* and *Hakeas*, are numerous, many of which are beautiful and extremely quaint in appearance. Among the more striking paintings is one of the *Waratah* (*Telopea speciosissima*) as it grows in the Bush. It is a magnificent plant, but Miss North says there is fear of its becoming exterminated, as the flowers are brought into Sydney for sale in such quantities that the plants have but little chance of perfecting seeds. The *Waratah*, it will be remembered, was exhibited in London this year in flower from Pendell Court, though the flowers were much smaller than in Miss North's painting. *Hakea cucullata* and various other Proteads that are cultivated in the temperate house near possess a deal of interest for cultivators. The splendid *Water Lily*, *Nymphaea gigantea*, as it grows at Brisbane is the subject of a fine painting. The minor variety is in cultivation at Kew, but the type would be greatly welcomed, as it is so handsome. The *Glory Pea*, *Clianthus Dampieri*, is beautifully represented as it grows naturally. The doors, door-posts, and various portions of the walls have been embellished by Miss North with paintings of plants, chiefly those growing in the gardens, and as they are mostly familiar they will be readily recognised. Among the less common plants painted are *Aristolochia Goldiana*, *Anthurium Andraeanum*, *Canna Ehemanni*, *Vanda suavis*, *Doryanthes Palmeri*, all life-like portraits, taken as they flowered recently in the gardens here.

The above are a few of the principal features of this unique gallery of paintings, which must henceforth be one of the main attractions at Kew, a source of instruction alike to the artist and lover of Nature. It shows, too, in a small compass more vividly than anything we know the wonderful way in which our world is clothed in its various parts with such extremely diverse types of vegetation. W. GOLDRING.

A GARDEN OF RHODODENDRONS.

THE *Rhododendron* season is again at its height, and dim is that garden which is not more or less lit up by the showy flowers of these beautiful shrubs. Gardens in which they are made an exclusive feature are, however, but few; indeed, we know but two in the vicinity of London in which may be found every variety of *Rhododendron* worth cultivating. These are both Surrey gardens—the one attached to the delightful residence of Mr. McIntosh, at Duneevan, Weybridge, the other at The Dell, Egham, where *Rhododendrons*, like Orchids, form the special favourites of Baron Schröder. This charming and admirably kept garden we visited a few days ago, and saw such a collection of *Rhododendrons* as could not be met with else-

where, so thoroughly representative is it of every type of hardy *Rhododendron* extant—not merely solitary examples, but scores—indeed, we might say hundreds—the whole being arranged in the most charming manner conceivable. The grounds surrounding the residence are many acres in extent. They consist of one broad plateau, almost a dead level, over which the *Rhododendrons* are spread, not in formal clumps, but in large picturesque masses in which the different colours are tastefully blended, the whole viewed from the windows of the house forming a display at once rich and striking. No monotonous glare of colour is, however, there, owing to the skilful manner in which tree growth is blended with the *Rhododendrons*. The trees for the most part consist of conifers, of which there are some grand examples. A pair of Cedars of Lebanon spread out their huge horizontal branches in all directions and throw their broad, dark shadows across the greensward; while in contrast with these is the columnar growth of such conifers as the Douglas Fir, Silver Firs, Junipers, Araucarias, Decidars, Cypresses, and particularly *Cupressus Lawsoniana*, than which we know of few finer examples than are to be found here. These, with various other conifers, including some remarkable clumps of the golden variety of *Retinospora plumosa*, the Golden Yew, and the variegated *Wellingtonia*, make together with the *Rhododendrons* and the deciduous trees and shrubs a landscape in striking contrast with the open glades and dells in Windsor Great Park, which abuts on the property in question.

Rhododendrons of all kinds thrive well here, as might be supposed, for they are in the vicinity of the great Surrey home of the *Rhododendron* at Bagshot, and the size of trusses, as well as of flower, here attained is marvellous. Besides named varieties there are large numbers of unnamed seedlings, many of which are highly meritorious, but the following selection is confined to the named kinds.

Amongst whites few surpass The Queen, which has huge trusses of large and finely shaped blossoms, at first bluish, but afterwards changing to pure white. Here it is a favourite, and is seen to perfection, being so grouped as to be in strong contrast with some dark or high-toned variety. Other established favourites amongst whites are Madame Carvalho and Purity, both of which have yellow spots on the dorsal petal. Lady Olive Guinness has purple splotchings on a pure white ground, Mrs. Tom Agnew yellow spots, while a new variety named the Duchess of Edinburgh eclipses all other whites by the immense size of the truss and ample flowers, each of which measures fully 4 in. across, and pure white with a conspicuous lemon blotch.

Our choice amongst dark sorts would be Baron Schröder, which stands out prominently from all the rest as regards colour. The latter is a rich vinous purple, with a conspicuous blotch of bright orange yellow, a strange combination and very attractive; both truss and flowers are large, and the habit of growth is all that can be desired. A fine group of this variety forms a prominent feature here, and, being surrounded by The Queen, its fine rich colour is shown off to excellent advantage. Other lovely dark varieties are Sir Joseph Whitworth and Duleep Singh, neither of which should be omitted from any good collection.

Among bright rose or rosy crimson kinds the following are the finest, viz., Kate Waterer, a magnificent variety bearing large dense trusses of handsomely shaped rosy crimson blooms, with a large yellow blotch on the back petals. This is without doubt one of the very finest of all *Rhododendrons*, but being new it is not as yet

much known. Crown Prince, after the same style, is likewise a handsome sort, though the yellow is not so prominent. Frederick Waterer has flowers of a vivid crimson-carmine, beautifully shaded with a lighter hue, so as to render it very attractive, and the exquisite crimping of the petals, similar to that of *Everestianum*, much enhances its beauty. It is, moreover, good in habit, very floriferous, and bears large trusses. Lady Falmouth anyone may at once single out from all the rest by its large, clear, rose-tinted blossoms, having such bold and conspicuous splotchings of an intense jet black; and another kind with these markings nearly equally prominent is Surprise, the ground colour, however, of which is more inclined to purple; it is a very fine variety, and one which has exceptionally large flowers and fine pyramidal trusses. The well-known and beautiful *Concessum*, with its large trusses of delicate rose-coloured flowers, has even now but few, if any, rivals in its colour; and the lovely Lady Eleanor Cathcart is still unique amongst kinds possessing a clear Geranium tint. The shade of colour of which Alarm is the type is well represented by such splendid sorts as Helen Waterer and the Baroness Schröder, the latter having flowers with a pure white centre broadly margined with the brightest rose-pink. Princess Mary of Cambridge, another fine sort, is much in the same way.

Among other kinds that are indispensable in forming a good representative collection are, John Penn, salmon-pink; Minnie, blush white; Raphael, crimson, copiously spotted; James McIntosh, bright rosy scarlet; Mrs. R. S. Holford, rich salmon-pink; Sigismund Rucker, rich magenta, finely spotted; Lady Clermont, rosy scarlet; Michael Waterer, still one of the best rose-scarlets; B. W. Currie, *Papilionaceum*, J. Marshall Brooks, crimson; W. E. Gladstone, very fine rich rose; *Everestianum*, indispensable to every collection. Princess Mary of Cambridge, Sydney Herbert, Lady Clancarty, J. H. Agnew, Lord Eversley, Mrs. Russel Sturgis, Lady Armstrong, Charles Bagley, and Lord Selborne are likewise among the best.

Besides the hybrid *Rhododendrons* there are capacious beds of the sweet-scented alpine species, which, though not so showy, are very pretty and attractive. The Ghent *Azaleas*, too, though now past their best, have made a wonderfully bright display, and so have other kinds of American shrubs, all of which unite in creating one harmonious whole. W. G.

Anti-vivisectionists.—“The estimable and compassionate Canon Hole” presents his grateful, but fearful, compliments to “P. F. O.” (Pretty Flattering Creature!), fearing that he must forfeit her esteem by declaring his heartiest sympathies with “the wholesale cruelties of Mr. D. T. Fish.” When the Canon discovers “a worm in the bud,” he scrunches that grub into instantaneous annihilation. If a fat slug crosses the path of his rock garden, he at once puts seventeen stones of indignation on the top of him, and he becomes unconsciously and hopelessly blended with the gravel. But the Canon fails to see the resemblance between the imperceptible extinction of a caterpillar, destroying beauty, and the slow torture of a living cat, which is doing, and has done, no harm. If the rosarian were to murder his aphid with the deliberate ferocity which was suggested some years ago by that wife-beating rascal, “Mr. Punch,” as an appropriate form of capital punishment for the convicted flea; if, having caught him he were to take a private box for him at some fifth-rate theatre, and make him listen to some drear and endless drama until he fell dead from his chair; if he were to shut him up in a pill-box with his

enemy, the ant, expressing sarcastic hopes that he would profit from his close intimacy with such a highly moral companion, and would specially notice, with a view to imitation, his remarkably industrious habits; or if he were to pull him to pieces, with such intervals as Nature could support between the pickings, then the Canon would perceive some analogy between vivisection and insecticide, but the two processes, as they are now practised, have (whatever may be urged in defence of vivisection) no grace (or disgrace) of congruity.

—“P. F. C.” confounds or mixes up cruelty and killing, obviously never having heard of the Scotch housewife’s advice to her chambermaid, “Kill ‘em quick and dinna hurt ‘em!” A more humane or painless death than the sudden and prompt squashing of grubs or caterpillars in their parasitical bed and larder combined—an up-curl’d Rose leaf—it is impossible to devise. What is objected to in vivisection is the torture inflicted in the dissection of living animals. No man nor body of men have any right to inflict such sufferings on even the lowest animals, unless it can be shown that by doing so more and greater sufferings may be prevented or cured among higher animals, and thus the sum total of suffering in the world be lessened. But killing is a necessity. Life out of death seems, in fact, the law of the universe. In regard to Roses, as in most other things, it is simply a question of the survival of the fittest. Grubs, caterpillars, flies, worms—shall these or Roses prevail? Why should “P. F. C.” reserve all his tender pity for the former and none for the latter? Not a few plants are sensitive to touch; all are sensitive to light; and who knows whether some or all of them may not be sensitive to pain? Be that as it may, our duty is to stand by our Roses—help them to vanquish all their enemies, and, like true and loyal knights, fight to the death everything that would soil their purity or mar their beauty. Killing is by no means work to our taste; cruelty is foreign to our nature; but fealty to our Rose queen hardens our hearts and strengthens our arms against all enemies.—D. T. FISHER.

EDITOR’S TABLE.

GAULTHERIA ACUTIFOLIA.—This is new to us; it resembles our old friend *G. Shallon*; has hard leathery leaves and plenty of downy Bilberry-like flowers in little racemes. From Coombe Wood.

MARTYNA FRAGRANS.—Mr. Greenfield sends us this, and praises it for pot culture, but it comes so well knitted into the cotton wool that surrounds it that we failed to get it out, and so popped all into the waste basket with some impatience.

PHITELIA BUXIFOLIA comes from the open ground at Coombe Wood like a little *Lapageria*. It likes a nice moist, cool nook in peat soil on the shady side of a high rock, hardy fernery, or perhaps still better in a corner on the north side of a wall.

THE WHITE WEIGELA.—A very beautiful shrub, with a strange and delicate purity of colour. It should be grown with the fine series mentioned elsewhere. A gem of purest ray, sent from Grasmere under the name of *W. hortensis nivea*.

LILIES FROM HIGH BEECH.—From High Beech I send you *Lilies* of the umbellatum type—the spotless Sappho, and the rich bloodshot incomparesable; also *Lilium carnioicium*, very bright and pretty, but with the disagreeable smell of the Turk’s-cap.—G. PAUL. [Handsome *Lilies*, nobly grown, much more vigorous than is common with these kinds.]

THE ORANGE-FRUITED PYRACANTHA.—This, like the other forms and allies of this well-known berry-bearing shrub, is very pretty in flower when closely examined, and particularly good at night, the little Hawthorn-like blossoms and small pearly buds showing well by artificial light.

THE FRAXINELLA comes strong and bold from Grasmere in two forms: its fine spikes and curious odour make it welcome, and one would like to see it better grown more commonly. An old plant which in some places never makes any visible progress, and in others grows freely enough, particularly on the chalk and sand.

DIGITALIS THAPSUS.—This plant we have not seen for many a day. It seems to be a perennial species allied to the common Foxglove, and was grown in the Garden of Plants at Paris some years ago. Mr. Stevens now has it, but it is said to be tender, and we know it is difficult to keep. A Spanish species.

EUGENIA UGNI VARIEGATA.—A yellow creamy looking variegation of this shrub with delicate little Peach-coloured cuppy flowers. One can only judge of it fairly by its growth as a bush, but it does not seem to have the sickly hue of many “variegations.” The blossoms are singularly delicate looking as they hang on the underside of the shoots.

PERNETTYAS IN BLOOM.—These little bushes are almost worth growing for their flowers, which come in such profusion and are very well formed. The best way with them would be to pick out the varieties that have the largest flowers; for the beauty of their berry they are none too many, but they flower so bravely that it would be worth selecting them with that view. From Mr. Stevens.

PHLOMIS FRUTICOSA.—This is very fine indeed among the shrubs in June; good in colour and strange in form, it well deserves to be represented in the interesting and varied garden. From Coombe Wood Nurseries. There is a strange charm about it in the cut state, and it lasts long—goes on quietly opening its bronze-golden flowers days after the many flowers that come along with it have perished.

CRATEGUS PYRACANTHA.—This is pretty in a room with its brushes of flowers, little pearly buds; and equally interesting is its bold variety *Zealandi* which is worth growing for its flowers alone. Near them come *C. crenulata*, of which we have heard a very good account. Most important shrubs for our country. These forms and allies of the common *Pyracantha* are charming in the cut state, particularly at night.

A CRIMSON SOUVENIR DE LA MALMAISON CARNATION.—We send you a bloom of two of our new crimson *Souvenir de la Malmaison* Carnations. It is of very free habit, and makes a fine plant for conservatory decoration.—KELWAY & SON, Langport. [It seems a distinct flower, but has no marked resemblance to fine specimens of the ordinary type, and it is not nearly so large and has not the fine odour. We should like to see it better grown.]

IRIS DE BERGI.—This rich old *Iris* is one of the handsomest border plants we have when well grown. It should be represented in every garden where hardy plants are cared for and grown in bold tufts in deep and good soil, and not allowed to get too thick. When well esta-

blished, it should be disturbed or transferred now and then. Its dark velvety and rich yellow flowers are very fine indeed under the conditions we mention. With various *Iris*es of the hardier kinds from Messrs. Osborn.

AZALEA VAN HOUTTEI.—George Paul sends us this, a double or semi-double kind, full of flower and fine orange-yellow, from his nursery at High Beech, where, presumably, it is growing in the bog, not this time “artificial.” Most people are obliged to content themselves with very artificial bogs, but Mr. Paul wisely left some spots in their natural state in that respect, and we have no doubt he will get his reward.

PINKS.—A delicious bunch of *Pinks* from Mr. Ware, deep fringed rose, the good old dark centred type, fringed petals, soft intermediate colours, bold edged kinds, large blosby flowers, delicate modest colours, single forms—a very considerable and charming variety of a flower, which we hope will never cease to be popular and well grown. Among them are the following taken at random as good and bold: Modesty, Ascot, Volunteer, Early Blush, Lord Lyons Mrs. Sinkins.

THE AZORE LAUREL (*Laurus azorica*).—A pleasant evergreen, with fine dark glossy old leaves, brownish green young leaves, and many spikes of cherry-like bloom, each blossom with an orange yellow centre, the flower-buds set like pearls creeping up the raceme. A most interesting plant, not perhaps one that we should like to plant where the Portugal Laurel is delicate, but still meriting the attention of all who care for evergreens and who have gardens in which they grow well. From Coombe Wood.

DOUBLE ROCKET FROM EGLINGTON.—Mr. Gray has given us great pleasure with his double *Rockets*, which scent the house as some delicious and well ripened Peaches might do, though the odour is not quite the same. We suppose his to be the old double white; it is very much broken in the spike and compact, and also a good white and a good double, but if it were black instead of white, and the meanest flower in Britain, it would be worth cherishing and growing everywhere for its delicious aromatic breath.

CRATEGUS TANACETIFOLIA.—This comes to us from Messrs. Osborn, Sunbury, and reminds us of the beautiful late flowering *Hawthorns* which should be represented in every good garden, and which prolong so well the season of a flowering tree that everybody likes. Our own *Hawthorn* in the face of storms or bad weather sometimes disappears almost as soon as the *Lilac*, and to us it is an annual pleasure to find the North American and European species coming into bloom after our own *Hawthorn* has passed away.

LILIES.—From Mr. Bartholomew, Park House, Reading, a variety of the bolder and earlier *Lilies* and the *Mariposa Lily* well grown—*davuricum*, *testaceum*, *Martagon album*, and a longiflorum malformed, I am afraid (*carnioicium* is also out); *Calochortus venustus*, *Pentstemon carinatus* and *confertus* var. *ceruleo-purpureus*, and *Anemone pennsylvanica*. In many parts of the country collections like this are being made, and will do good in their neighbourhoods.

RAPHIOLEPIS OVATA.—This is known as a fine evergreen, but it is a pleasure to us to see it in bloom! A prettier thing in form we have

not seen for a long time; the thick leathery foliage is well calculated to stand our winters and our summers too apparently, but the downy, brown-green, young shoots springing up around the groups of flowers give a singularly good effect! We should call it a first-rate flowering shrub and good evergreen in one, and beg of all who take any notice of us to give it a good berth.

MR. WEBSTER sends us from Penrhyn, North Wales, a couple of spikes from a white Stock that has been flowering since last July incessantly, and has now sixty-nine heads of bloom, although frequent cuttings have been made. Probably the proximity to the sea has much to do with the production of such beautiful and fragrant flowers for so long a period. Surely no hardy British old-fashioned flowers are capable of adding so much beauty to our gardens as the Stock, and none are so much neglected.

FREMONTIA CALIFORNICA.—This comes to us from Coombe Wood, pleasant as ever to see in its fine rich golden cups and soft downy looking leaves a reminder of those glorious Californian hills, bathed in sun from January to December, where the Mallows and Composites attain the dignity of the shrub state. This Fremontia is a precious plant for us, but it wants care, and no one should try it away from a wall unless on a very warm soil and free bottom. A good wall plant it undoubtedly may be in many gardens, as shown at Coombe Wood.

VIOLA MRS. GRAY.—Having seen this week and last the glorious and intense colour of Messrs. Dickson's Pansies and Violets, we were not prepared to see anything very striking in that way, but Mr. Gray, of Eglinton garden, charms us with a batch of his beautiful white Viola bearing the above name. It is as if one having seen the gold and purple of many tropical birds had come upon a flight of white doves. We can imagine nothing more delightful than a group or bed of these on a summer morning, and many will thank Mr. Gray for raising a plant likely to be so welcome and so useful.

THE CAROLINA ALLSPICE comes from Mr. George Paul, at High Beech, and he appears to have found a good home for it in a bit of the natural bog retained when making the nursery. This bog is also inhabited by other curious naturalised plants, such as self-sown seedlings of *Drosera filiformis*, the hardy *Sarcocolla purpurea*, and the Arctic Bramble (*Rubus arcticus*), which is just now ripening its fruit. Such bogs would be very interesting, and the more so from what Mr. Paul appears to have done—introduced some of the bog shrubs. In North America the bogs are always graced by a dotted growth of shrub life from the little creeping Cranberries to the sweet-scented Magnolia, *M. glauca*.

SAXIFRAGA COTYLEDON.—This handsome plant, of the alpine ranges of Europe, is very showy at this season, both in our markets and in gardens where hardy plants are grown. Showy is not perhaps the word so much as beautiful, though the large plume-like pyramid of flowers is very effective. It is perfectly hardy, as a plant should be, which one sees often adorning the most arid slopes of the Alps in early summer with its fox-brush-like masses of flowers. The market gardeners are growing it now for the market, as it is a perfectly elastic plant, so to say, as regards its facility for being cultivated in pots, cold frames,

or in the open air. Some nice specimens are sent to us from Messrs. Osborn, at Fulham and Sunbury.

THE ODOUR OF POPPIES.—It is impossible to endure the air of a room where the large Oriental Poppy in all its glory is in flower. Some kind friend brought us two blossoms that were splendid in their form and colour and freshness, but after a time the place became uninhabitable. Curious this odour of Poppies, as many other odours. The French Poppies which come in such splendid colour and variety from Miss Jekyll also have a deep unpleasant odour; they are admirable for the open air. Yet the Greenland Poppy (*Papaver nudicaule*) has a delicate odour, while there is nothing more showy and fine in the genus than its glowing golden colour. What are our evolutionists to make of flowers of the same family, some of which have bad smells, some none at all, and some gratefully scented?

THE OLD ROCKET.—I send half-a-dozen spikes of blooms of the double white *Hesperis*. I have a large bed of it about 36 yds. long and 2 yds. broad, containing about a thousand plants; on some of the plants there are from ten to nineteen spikes, all open like those I forward to you. They are very beautiful, and the scent is rich after the glorious showers that we are just now having.—R. S. KESTEVEN, *Thorne, near Doncaster*. [The spikes are very long and full, so well grown as one rarely sees the double Rocket nowadays. The scent is not nearly so spicy as in the more compact and branched form sent by Mr. Gray, but the racemes are larger. They are different forms. We trust Mr. Kesteven will keep up his stock of so good an old plant—one of those that will not bear neglect.]

FANCY PANSIES.—We send some fancy Pansy blooms for the editor's table. It is not surprising that so many are fond of this class, as the variety and brilliancy of the colours are quite astonishing, and several of those sent, though not perfect exhibition flowers, are certainly pretty border plants, and that is what people look for.—DICKSONS & CO., 1, *Waterloo Place, Edinburgh*. [They are fine flowers, marked by the predominance of orange, wallflower, bronze, yellow, pale crimson, and brown. Some one has lately preached a very silly sermon about flowers in London. The next time a subject for a flower sermon is wanted it would be well to thank God for the Pansy. The only unfortunate thing is the distinctions between Violets and fancy Pansies. They are all really of the same nature and origin, and though we must have names for individual kinds, it is not necessary to throw them into artificial groups.]

THE MOUNTAIN LAURELS.—From Coombe Wood we have a pretty group of these hardy shrubs which withstand our winters bravely. The last few winters have been the test of hardness of many things; these *Kalmias* have come through well, and on the poor hungry sands of Surrey we have now brave bushes, in some cases, as at Bagshot Park, 12 ft. high, huge bouquets of pretty pink blossoms. Mountain Laurel is the American name for them, by reason, we suppose, of their evergreen clothing of the hills. Messrs. Veitch send the following, the smaller kinds especially, interesting to rock gardeners and others, but all good: *Kalmia myrtifolia*, *K. latifolia* major splendens, *K. rubra*, *K. angustifolia*, *K. angustifolia* pumila. The question simply is the thoughtful arrangement of such shrubs, so that the rain and snow and soil may all go to add to their beauty and not making a hash of them by overcrowding and sticking them

in the common shrubbery. The differences botanically in the preceding may not be thought much of by the botanist, but for our gardens they have much value, as the plants differ a good deal in size and colour.

WEIGELAS.—Among the shrubs not so much neglected in our gardens as some others are the Weigelas. Their grace and their other merits have to some extent saved them from the common lot of our shrubs, and surely there is nothing which we are more indebted to the East for than these hardy and free blooming bushes. *W. Van Houttei* is very fine indeed, and very free and bold—a shrub that will last, we should say; the colouration of the flowers is charming; patches of white and rose alternated on the outside and inside, too. The variegated *Weigela* is a poor thing, starved in growth, bad in colour—should be thrown away. *W. Stelzneri* seems a vigorous and graceful form, with a deeper colour. *W. amabilis alba* is a large flowered kind, with a very delicate pink outside and a peachy white within. A man might do worse than make a little garden of these Weigelas, even if he put the variegated one into the waste-paper basket.

FRENCH POPPIES.—On the first of June these are magnificent in the gardens at Munstead, from autumn sown plants, of course. In the winter they gain a strength which gives them such fine colour and large size. Mr. Peter Barr, whose business it is to know about annuities, could not believe that such a harvest of French Poppies was visible at this time of the year, till we showed him their many coloured flags with the light dancing among them, even the light of the Strand. But seedsmen generally make a mistake in not urging on the gardening public the importance of sowing all our finer hardy annuals in autumn. It would make a great improvement in the open-air aspect of the garden, and all our annual merchants, so to say, should have a good series ready for autumn sowing. They regard, however, the time of spring as the time of seeds, and so no doubt it will go on, and few people know the value of hardy annuals in garden decoration.

GUELDER ROSES.—How effective these are at this time of year when well grown, and how hardy and beautiful in our country! No children of the too warm south, they seem to be all as regardless of what is called our bad climate as the common Wayfaring tree. The wreaths of *V. plicatum*, from Coombe Wood, a yard long, strong with heads of flowers as large as snowballs, are very effective, and mark the distinctive charm of this species, the gradually diminishing size of the snowballs towards the apex of the graceful free shoot. Surprising to us, however, is the size of the common *Guelder Rose* (*V. Opulus*) when well grown. A head from Coombe Wood is 5 in. in diameter larger than some of *V. macrocephalum* sent from the same place. This is very instructive in showing us that novelties sometimes charm from the kind treatment they received on their introduction to our climate. Some of the old things replanted starting young in the world might surprise us as this old shrub does in surpassing in size the so-called great-headed one.

New method of destroying green-fly and thrips —M. Boizard, gardener to the Baroness James de Rothschild, claims to have been very successful in destroying green-fly and thrips by a process probably new to your readers generally. M. Boizard's method consists in boiling, by a slow fire, tobacco juice placed upon a stove, until it evaporates. The vapour arising therefrom, being

deposited in the form of dew upon the foliage, operates with deadly effect upon any insects which may chance to be there. It is asserted that this is a far less dangerous system of getting rid of green-fly than fumigating, whilst at the same time it is more efficacious. If this be correct, the plan is worth a trial.—J. C. B.

ORCHIDS.

ORCHIDS AT SUDBURY HOUSE, HAMMERSMITH.

THE fine collection of Cactaceous plants for which Mr. Peacock's garden here has become so well known is now supplemented by even a more extensive, if not richer, collection of Orchids, and on the whole the plants are admirably grown, especially having regard to the fact that the garden is situated in one of the most populous parts of western London. It is almost entirely covered with glass structures, filled to overflowing with Orchidaceous, Cactaceous, or Bromeliaceous plants, the three classes to which Mr. Peacock devotes particular attention. The style in which the Orchid houses are built is well calculated for the successful culture of such plants. Two of the principal houses are unusually narrow, but about 160 ft. in length. They are both lean-tos, having respectively east and west aspects, and among the whole of the structures the conventional "north" house usually considered so indispensable for growing some of the cool house Orchids is not represented. As it is, Masdevallias, Odontoglossums, and similar genera do uncommonly well in the lean-to houses with western and eastern aspects. The others are span-roofed, and being tolerably lofty suitably accommodate tall growing Dendrobis, Cattleyas, and Lælias, &c. One thing strikes the visitor at once, and that is the enormous quantities grown of the more attractive Orchids such as are seldom seen in an amateur's collection. For example, such popular Orchids as *Odontoglossum crispum*, *Pescatorei*, and *Rossi* may be counted by hundreds and even thousands, consequently when in flower the display which they make is such as can be seen in but very few places. Besides, where so many of one species are grown, there is a wonderful variety of forms, especially of *O. crispum*, some of which are in flower. The best show, however, just now is effected by means of some scores of fine plants of that queen of Odontoglossums, *O. vexillarium*, which forms one massive group and bristles with flower-spikes, hanging gracefully all around the plants, so different from the way in which one sees them at a flower show. Such a display as this lovely Orchid affords one a good opportunity of seeing the differences that exist between a poor and a fine variety. Here are some with large flowers either of the deepest rose-pink or nearly white, while in the case of others the flowers are small and the colour washy. Some of the plants here bear upwards of half a hundred flowers.

Among other Odontoglossums we noticed the beautiful *O. Roelzi* and *O. Phalenopsis*, both doing well in an intermediate house where they get plenty of light, some hundreds of each being represented. Of the much-talked-of *O. Coradinei* two forms are in flower, neither of which are so beautiful as either *Pescatorei* or *Alexandree*. We cannot but think that both *O. Coradinei* and others of a similar stamp have been over-rated, though, no doubt, for the specialist they possess a good deal of interest. An uncommonly fine variety of *O. citrosum* arrested attention in one of the warm houses, the flower being not only larger than usual, but beautifully spotted like the one that fetched such a high price (about

£27) at Stevens's the other day. There were both the pure white and the rose variety so exceptionally fine. Another beautiful *Odontoglossum* in flower is *O. nebulosum*, of which there is a variety named *guttatum*, having larger flowers and much more spotted than the type. This is one of the choicest of Orchids and one that is easily grown.

The Cattleya house presents a beautiful sight, there being some score of blooms of *C. Mossii*, representing this grand Orchid to perfection, and in as great variety as it is capable of producing. It is impossible to describe the difference between the finest and the poorest in this collection, though the poorest among them are all fine. It is when seen in such numbers as to be met with here that the gorgeousness of this tropical epiphyte is seen in its true character. *C. Warneri* no one need hesitate to recommend for general cultivation, for it is truly lovely. It is represented finely here, as is likewise *C. Mendelli* in great variety. The *Dendrobium* house is lit up with lovely flowers of *D. Parishii*, *Bensoniæ*, *Jamesianum*, and *infundibulum*, four of the finest species that bloom at this season, besides numerous others, including *D. tortile roseum*, an extremely pretty *Dendro* not often grown, but which ought to be popular. Its flowers are large, the ample lip pale, the sepals and petals of a beautiful deep rose, and most elegantly twisted, hence its specific name. Among the *Oncidia*, *O. macranthum* is very fine, and shows well what an attractive Orchid it is when well grown, and flowering so late makes it all the more desirable. We never before saw such remarkably fine varieties of *O. Kramerii*, one of the Butterfly Orchids; we should say that there exists here the finest forms of it in cultivation, the flowers being very large, the colour bright, the markings well defined, and the sepals exquisitely crested at the edge. A score or more of plants of *O. Kramerii* and *Papilio* made such a display as is rarely seen.

Masdevallias form an uncommonly fine collection; amongst them are unique plants of *M. Harryana*, *Lindeni*, and *Veitchii*, all of which are making a fine display. These are grown in a cool, shaded house in a moist, growing atmosphere. In another house a plant in flower of a fine variety of *Cœlogyne ocellata* was prominent, and though not named, it is identical with, if not finer than, that known as *maxima*, which is so much finer than the type. A spacious span-roofed frame outside is now filled with about half-a-hundred specimen plants of *Cypripedium* insignis and its varieties. This we were told is the summer quarters for this Lady's Slipper, and a good one, too, we should imagine, for well ripening the growth for next season's flower.

W. G.

Anguloa Clowesi.—A fine specimen of this, according to the *Irish Farmers' Gazette*, is now in flower at Mount Anville. It is in a pan, and is fully 4 ft. through and 12 ft. round. It is in the best of health, showing thirteen or more fresh growths, while round the circumference of the leafy centre are no fewer than 65 flower-scapes, each capped with its great cymbiform cup of golden-yellow, the whole forming a picture the plantsman who has seen it is not likely soon to forget. We must, therefore, congratulate Mr. Roe on the possession of such a specimen, and his gardener, Mr. Fisher, on what must be regarded as a triumph of cultural skill. The plant is grown in an intermediate house, the potting material fibry peat, loam, and charcoal—good, wholesome food, which Mr. Fisher did not care to supplement or moisten with anything except water.

The Dove plant (*Peristeria elata*).—It is a remarkable fact that though this beautiful Orchid exists in so many gardens, it is comparatively seldom seen in bloom, a circumstance probably owing to the indifferent treatment which it generally receives. We saw it beautifully in flower in the small town garden belonging to Mr. Soper in the Clapham Road, who grows his few Orchids in an intelligent manner. A week or so ago we had occasion to note how finely he grew some of his Odontoglossums, and now the beautiful Holy Ghost flower of the Spaniards is the most interesting Orchid in his garden. It is a good sized plant with some half-a-dozen large and plump bulbs, and from the largest of them arises the tall flower-spike, terminated by about a score of waxy white blossoms, the column of which, with its appendages, bears some resemblance to a miniature dove. We attribute Mr. Soper's success in flowering this plant so well to his system of resting it by withholding water when the bulbs are matured, so as to more effectually consolidate them, and so induce them to throw up flower-spikes. The plant here is grown in a small, moderately warm house.—W. G.

Cattleya gigas.—I saw at Whitesnide this fine Cattleya in full flower at Burford Lodge, Dorking, and was much pleased with it. One plant bore sixty open blossoms, several of its spikes producing five each. Altogether it may be said to have been a perfect model of good cultivation, being well furnished with healthy foliage, massive roots, and flowers remarkable for size and beauty.—B. RANDLE, *St. Albans*.

Dendrobium Calceolaria.—From his rich Orchid collection Mr. Fowler, of Ashgrove, Pontypool, sends us a fine raceme of this old favourite, still one of the finest in the genus. The raceme bears ten large flowers, which are a soft, tawny-yellow suffused with a delicate rose tint. The two large deep blood-coloured spots on the interior of the slipper-shaped lip are very conspicuous, and add greatly to the attractiveness of the flower. It is the same as *D. moschatum*, though why that name should have been applied to it is strange, as the perfume is certainly not musky, but suggests that of *Rhubarb* root. It is one of the large growing kinds, and wants plenty of room, but is well worthy of culture.

Cypripedium caudatum splendens.—This is really a distinct and very handsome variety of the Long-tailed Lady's Slipper, for the colour of the pouch is altogether deeper and richer than that of the ordinary form. As far as our observation goes this variety is not common; indeed, we do not remember seeing it elsewhere than at Kew, where it is now in flower. One often sees the varietal name *roseum* doing duty in connection with an ordinary form of this Orchid, but seldom is the genuine *roseum* variety met with, but *splendens* appears to be richer in colour even than that handsome variety. Perhaps some of our readers who are skilled in Orchids can tell us something about the varieties of this Lady's Slipper.

Broughtonia sanguinea.—This is a pretty West Indian Orchid, which one seldom meets with in flower, though it is not a scarce Orchid in cultivation. Doubtless the reason why it does not flower oftener is because the plants do not experience the dry resting state they naturally have in their native habitat, but are kept moist throughout the year. We lately saw a plant of it finely in flower in Mr. Bowring's garden at Forest Farm, Windsor. This was attached to a suspended block as dry as dust, and the bulbs of the plant were shrivelling, a condition no doubt conducive to its sterility. The long slender flower-stems, terminated by a cluster of rosy crimson flowers, make it well worth attention.—W. G.

Cattleya labiata Percivaliana.—This new Orchid said to be so beautiful, and which has not yet flowered in this country, will, in a few days, be in bloom in Messrs. Shuttleworth & Carder's nursery at 191, Park Road, Clapham.

NOTES OF THE WEEK.

FREESIAS.—These plants promise to be favourites of the future, their peculiar, but graceful habit and fine odour being so remarkable. We hear they are extensively grown by Mr. C. Smith in the Caledonian Nursery, at Guernsey, the bed in a 200-ft. house being devoted to them.

LUPINUS POLYPHYLLUS.—Messrs. Wheeler, of Gloucester, send us samples of this fine old plant in five or six different forms. It is a perfectly hardy, handsome plant, as everybody knows, but perhaps its value is best as a wild garden subject. It will grow anywhere, and endure all hardships. In the choice border when it goes out of flower it is rather in the way and too vigorous, though there is no handsomer garden plant.

CYTISUS LABURNUM ALSCHINGERI is one of the best of the numerous varieties of the Laburnum, and, moreover, distinct from most others. It grows closely and compactly, and is extremely floriferous, the racemes of flowers being longer and narrower than those of the type and the flowers, too, much smaller. It is about a fortnight later than the common Laburnum. It is now in flower at Kew in the arboretum.

LILIUM GIGANTEUM.—The New Plant and Bulb Company, Colchester, send us a photograph showing a well-grown specimen of this noble Lily which has flowered beautifully under glass in a fernery belonging to the Rev. Charles Walker, Hove, Villa, Brighton. So handsome a specimen as this seems to be could scarcely be expected out of doors, except, perhaps, in some unusually warm and sheltered situation.

ABELIA TRIFLORA, now finely in flower against one of the walls at Kew, is a pretty shrub, and, being a rapid grower, is a capital subject for covering a wall. Its flowers are pale pink or almost white, and are produced in close clusters terminating the slender twigs. Being a native of the high Himalayas, it is harder than the other *Abelias*, except, perhaps, *A. rupestris*, likewise a pretty and desirable shrub.

VIOLA LOTTIE, sent to us by Messrs. Osborn, Fulham, is one of the richest coloured Violets we have seen. The colour is an intensely deep velvety purple, set off to advantage by a conspicuous yellow eye. The lower petal is almost wholly tinted with metallic brown, a colour which makes the variety very distinct. This charming *Viola* is said to be as free a flowerer as *Blue King*, and, if so, will be a really valuable sort, especially for masses in borders or edgings.

LYTHRUM GRAEFFERI, one of the hardy purple Loosestrifes, sometimes met with in hardy plant collections, makes an extremely pretty object in a suspended pot or pan such as may now be seen in the conservatory (No. 4) at Kew. The stems, being slender and naturally procumbent, fall gracefully over the side of the pot, and the pretty spikes of deep lilac flowers are thus shown off to the best advantage. Those who have a spare plant of it would do well to treat it as a basket plant for a cool greenhouse or room window.

CHEENOSTOMA HISPIDUM is a plant we have long known at Kew, but never have we met with it elsewhere, though it has much to recommend it. It is dwarf (about 6 in. high), dense and neat in growth, and for several months during the year bears a profusion of flowers, small and almost white, it is true, but, being numerously produced, highly attractive. At Kew it is grown in pots, and is generally

placed in the cool greenhouse, occupied for the most part by Cape of Good Hope plants. It is, however, hardy enough for the open borders during summer. It is a desirable little plant, and one that deserves general culture.

THE UMBRELLA TREE (*Magnolia Umbrella*) is now a conspicuous object in the Kew arboretum, there being several fine specimens of this *Magnolia* there in bloom. It is one of the noblest of all the North American trees; even the small specimens in cultivation in this country bear leaves upwards of a foot in length and very broad. It is somewhat straggling in growth, but this does not detract from its handsome port. The flowers, which measure 6 in. across, have numerous white sepals, and are borne singly at the tips of the branches, surrounded by a tuft of huge leaves. It is perfectly hardy in this climate, and is a tree that ought to receive from planters more attention than it does. It is the same as *M. tripetala*, a name under which it is most frequently met.

LONICERA SEMPERVIRENS.—If the beauty and usefulness of this North American Honeysuckle, commonly called the Trumpet flower, were better known, it would be more generally grown than it is. We have rarely seen anything more beautiful than a large plant of it against the back wall of a cool conservatory in Baron Schröder's garden at The Dell, Egham. This plant, which covers several square yards of wall space, is now a complete mass of bloom, and the rich orange-scarlet colour of the flowers makes it very attractive. It lasts well in a cut state, and is, therefore, valuable in places where a large supply of cut bloom is needed. Planted out in a border of good soil in a cool, airy greenhouse, it gives very little trouble.

A COTTAGE GARDEN IN SPRING.

THE most brilliant sight I have seen this season was a cottage garden which I passed the other day full of springtide life and beauty. The latter was found to consist wholly of Gilliflowers, as the cottagers call Wallflowers, all single, Pansies, and Tulips. The two first formed nine-tenths of the whole. The prodigal wealth of colour in the Wallflowers alone seemed to include all shades from blood-red to deep yellow. As for the Pansies, well, they were nothing to the florist, but were brilliant in colour—purple, almost reaching down to black in its density, to orange and yellow of all hues, and a white with a speck in its eye only. But the amount of flower as well as the prodigality of colour were wonderful. The Pansies and Gilliflowers were wonderfully mixed up and blended. Some of the Pansies had even used the taller flowers as stepping-stones to rise to their very tops and spread out horizontally over them, so that here and there the two flowers were alternated, and at some places a Gilliflower was pincushioned into and above a bed of Pansies. The Tulips were of the old-fashioned sorts—a kind of claret, a pure white, and a variegated yellow, not by any means of either *Pottsbekker* or *Van Thol* types. But they were true show Tulips, in form perfect cylindrical cups of beauty, though their colours were none of the purest, nor the most brilliant. Their globular cups crowning and resting on the glowing cushion of Heartsease had a most pleasing effect. The stems of the Tulips were so slender, and their flowers so large and full in proportion, that the whole waved up and down, or were swayed hither and thither by the wind. The picture was perfect; no, not quite, nor just yet; it wanted the coming Rose, and the fragrant Mignonette. The cottage was small and the tenants seemed poor, but nor prince nor peer could hardly have a richer feast of fragrance and beauty than that crowded around that cottage door.

These, and many other elements of beauty, are within reach of every one. Independent of the

moral and educational influences of flowers, their sanitary effects should not be overlooked. Every one familiar with the country must have noticed that, whether by accident or design, almost all cottagers grow sweet flowers. What, for example, could be more fragrant than Pansies and Wallflowers? And fragrance is as much needed as an antiseptic, shall I call it, in the country as in the crowded town. Piggeries, house slops, &c., make many a country village almost insupportable. The best, and perhaps most powerful, of all antidotes to foul odours is sweet scents, and it is probable that Gilliflowers, Pansies, Violets, Sweet Briers, Honeysuckles, Roses, and other fragrant flowers disinfect the atmosphere of feverish or other exhalations more perfectly, as well as more perpetually, than Condy's Fluid, or McDougal's, or other disinfectants. D. T. FISH.

FETTES MOUNT, NEAR LASSWADE.

Is beautifully situated on the Edinburgh side of the Esk, and commands extensive views of its wooded banks and of the grounds of Melville Castle. In front of the house the ground falls rapidly towards the road; here Mr. Potts has constructed extensive rockeries for his favourite Saxifrages, Sedums, and Sempervivums. The plan is a series of terraces, the flat parts being, in some instances, formed into ponds for aquatics, and in others into beds for growing seedlings, which are grown here by the thousand, and carefully protected from birds by nets. The nearly perpendicular rocks raised above and below the terraces are mostly covered with huge patches of Saxifrages, which are just now one sheet of snowy whiteness. The oozing dampness from the natural declivity seems to suit all the hypnoides and ceratophylla kinds to perfection, while the higher parts are devoted to fine specimens of *S. purpurascens*, *S. cordifolia*, and its many varieties. Pendent sheets of *Aubrietia* and *Veronica rupestris* help to show off Mr. Potts' favourites to advantage. Selected and drier spots are taken advantage of for growing such kinds as *S. valdensis*, *S. aetioideus*, *S. diapiensoides*, and various rare sorts, while on a flat table of stones are grown all the varieties of *Sempervivum* in cultivation. They are in excellent condition, and admirably grouped, so as to show the small differences in which frequently exist specific distinctions. It is only when one has a large collection of one or two genera, as is the case here, that specific differences melt away into one continuous chain, interrupted here and there by a prominent link. Mr. Potts has raised some fine seedlings, among others a pretty variegated form, and one with a dense, flat, neat habit and a profusion of bloom—quite distinct. The collection, being the largest in the country, and in first-rate condition, visitors to Edinburgh interested in rock plants should not fail to see it.

ROBERTSON MUNRO.

Abercorn Nursery, Pierhill, Edinburgh.

Antirrhinums.—Some plants of these saved through the winter are now blooming freely, and as border plants it is difficult to write of them in terms too glowing. There is just a little danger even amongst hardy plants that in running after novelties with hard, long names we may forget our old favourites. The introduction of tender plants for bedding purposes did great harm in that direction, and gardens were heavy losers in consequence. It would be a misfortune were we to learn to regard certain good old garden plants with coolness simply because they were only Snapdragons or Wallflowers. The Snapdragon, somewhat old as may be its ordinary application, will vie with myriads of border plants for elegance and beauty, and not least in the wondrous variety of its markings and colours. It is a border plant for the million, that may be raised from seed literally by the million, and it is as easily cultivated as any plant we have.—A. D.

Gloxinias (*G. Carpentieri*).—Very much bruised, but evidently good for seedlings with from twenty to thirty blooms on a plant, the second time of flowering within nine months.

TREES AND SHRUBS.

THE BEST BARBERRIES.

THOUGH there are upwards of half-a-hundred species of *Berberis* in cultivation, only about a dozen amongst them are what may be termed really good garden shrubs, for although they differ widely in structural peculiarities, many of them possess a striking resemblance to each other. The genus is divided into two sections, the *Berberis* proper and the *Mahonia*, which sometimes ranks as a distinct genus. Among the true *Barberis* a few are really beautiful shrubs. The finest, no doubt, is *B. Darwini*, first discovered by the late Mr. Darwin in Chili, and than which no more beautiful hardy shrub exists. This species is now too well known to need description. This year it has been very beautiful, the mild winter having been favourable to it, though even this season it has not

shrub that is not at all fastidious as to position, for it grows in shade as well as exposed, but it flowers most freely when in a good light soil in a warm, sunny situation. It is much hardier than *B. Darwini*, and seldom suffers from severe frosts. *B. empetrifolia*, though a fine shrub, is not equal to either of the preceding in point of floral beauty, but its habit of growth is elegant and it is very hardy. *B. dulcis* and *buxifolia*

Quite distinct from any of the foregoing *Barberis* is *B. Wallichiana*, a spray of which is represented in the accompanying illustration. We selected it from among the collection of *Barberis* in Mr. Stevens' arboretum, at Grasmere, Byfleet—a collection as complete as any with which we are acquainted. This species is a remarkably handsome one, on account of its compact habit and the fresh, deep green tint of its



Flowering spray of *Berberis Wallichiana*.

are both pretty, but cannot be ranked with the first-named kinds, and need only be grown where a variety of *Barberis* is required. The common *Barberry* (*B. vulgaris*) is really an ornamental shrub, and, when in fruit, very attractive, the long, drooping racemes of bright scarlet berries being produced very abundantly. There are about a dozen named varieties of it, all more or less distinct; a selection should include the white and violet-berried kinds, the fruits of which are very beautiful—*macrocarpa*, *sanguinolenta*, and above all the purple-leaved kind (*foliis purpureis*), a very ornamental shrub, the foliage of which is of a deep vinous purple hue like that of the Copper Beech. It is a very effective shrub when properly grouped, and one not often enough met with.

evergreen foliage, with which the clear yellow flowers finely contrast. This *Barberry* is a native of the Himalayas, where it was first discovered by Wallich, and introduced to cultivation by Messrs. Veitch, through their collector, Mr. Thomas Lobb. Subsequently it was sent home by Sir Joseph Hooker, and this circumstance no doubt accounts for the name *B. Hookeri*, by which it is known in some gardens. The name *B. Jamesi* is also applied to it, but we can see no difference between the plants under the two latter names and the true *B. Wallichiana*. It is hardy, though liable to be injured by very severe frost; it is, however, one that is well worthy of general culture. It thrives well in ordinary soil and in any position. A variety of it called *macrocarpa*, well represented in the Kew collection, differs from the type in having larger fruits.

Of the *Mahonia* section of *Berberis*, one of the commonest and withal the most valuable is *B. Aquifolium*, than which there are few better shrubs either for a shrubbery or for forming dense undergrowth in perpetual shade. It is very accommodating, for it thrives almost anywhere. *B. fascicularis* is much in the same way, but showier when in bloom, the clusters of yellow blossoms being more numerous. *B. japonica*, also called *B. Beali*, is a very handsome leaved shrub, though rather too tender for

been so fine as it was in the spring previous to the two disastrous winters of 1870 and 1880, which crippled it severely. Being a native of Chili, it will not stand any great degree of cold, and it is all the better for a mild spring. Next to Darwin's *Barberry* in point of beauty is *B. stenophylla*, a garden hybrid between *B. Darwini* and *B. empetrifolia*. The long slender branches of this *Barberry* droop gracefully on all sides, making the bush, when profusely laden with blossoms, look like a fountain of moulten gold. It is, moreover, a

our climate generally. It should, however, be given a place in a shrubbery, as it is so distinct from any other, except *B. nepalensis*, which is in the same way, but of much larger growth and less hardy. *B. Sieboldi* is also similar to the last two kinds, and, like them, is handsome in foliage. *B. nepalensis* is particularly desirable for planting against a sheltered wall on account of the huge clusters of yellow blossoms which it produces in spring amidst the fine bold foliage. W. G.

PRUNING PYRUS JAPONICA AND CRATEGEUS PYRACANTHA.

I OBSERVE that "J. S. W." is an advocate for unrestricted growth in the case of these two wall shrubs, and I so far agree with him that, given ample space for extension, I would never apply the knife to them, but would allow them to ramble at their own free will. The fact is, however, they are generally confined to a limited space, and therefore a few years puts an end to unrestricted development, and, it must be admitted, very often to flowering and fruiting. What frequently happens with regard to these two flowering shrubs is as follows: Young, healthy plants being set out in good soil make, when established a couple of years or so, very free growth, and the branches, not being crowded, the wood ripens well, and as the object of the planter is to cover the allotted space as soon as possible, he does not prune. The result is that the long shoots of the *Pyrus* become studded with bloom, and that those of the *Pyracantha* bear many bunches of fruit, large in size and full of colour. Many may have remarked specimens in these stages of development, and may have wondered why their own older plants should be comparatively barren. For some few years, according to the height and width of the wall space, the shoots increase annually in strength and bloom and fruit bearing capacity, but by-and-by they come to the end of the tether. There is a rapid falling off, the terminal shoots being stopped and the spurs generally being pruned back to maintain an even surface, but few flower-buds are formed. I have often noticed large, old plants, covering many square feet of surface, mere walls of foliage, unrelieved by fruit or flower, and forming a striking contrast to younger specimens.

A remedy for all this would be found in pruning back a portion of the tree severely every year, cutting within a few feet of the ground where the available height of the wall or trellis is not great. Thus there would be an annual production of strong shoots, which, if allowed ample space for maturation, and if left entire, would be studded almost their whole length with bright blooms or fruit. The following year the remainder might in their turn be cut away, thus keeping up the supply of productive wood from year to year. I know this plan will answer for the *Crategeus*, which may be pruned early in March, but as the *Pyrus* is valued for its spring blooming habit, one would not care to cut away buds already formed; therefore, in its case pruning would have to be deferred until later, but in the warmer counties, at least, there would still be time for a good growth to be made and ripened. I know of nothing more beautiful than the rich, ripe clusters of berries on the *Pyracantha* late in autumn and winter, especially when the shoots are somewhat thinly trained over light brickwork or stonework so that berries and foliage come out, as it were, to meet the eye. So brilliant are the berries in colour, that a single plant well clothed with them will light up a whole street; and, be it remembered, the *Pyracantha* thrives well in the confined precincts of a town, growing freely in a gravel courtyard or in any position where moisture and nutriment are not abundant; in fact, I think it fruits more freely under such conditions than when more favourably placed. J. CORNHILL.

Deutzia gracilis as a wall plant.—In very few places have I seen this beautiful plant trained on walls, but so treated it is, nevertheless,

very beautiful. It is sufficiently hardy to stand any kind of winters; but as an open air bush its beauty is sometimes impaired by the bitter winds of spring. On walls it is even more lovely than when grown in pots; and in good soil it makes shoots quite a yard in length, and which, when in bloom, are perfect wreaths of snowy blossoms. For low walls, or for covering bare spaces at the base of high ones, I do not know a better plant than this *Deutzia*.—JAMES GROOM.

Indian Azaleas planted out.—Anyone having a few spare plants of Indian Azaleas should lose no time in planting them out in a bed, consisting of peat, sandy loam, and leaf-mould, in a sheltered position. Any of the strong-growing varieties, and specially the old white called Miller's White, so largely used for forcing some years ago, or the small semi-double pink *amena*, are excellent for the purpose. When planting, be careful to make the fresh soil very firm about the roots, and water freely until the plants get well rooted. Under the shade of their branches plant Cyclamens and Dog's-tooth Violets, and edge the bed with some hardy permanent plant that looks well at all times, such as some of the Saxifrages, Sedums, or the dwarf Phloxes, such as *P. vernae* or *subulata*. Beds of this kind yield a large amount of interest and entail but a small amount of labour.—J. GROOM.

Conifers in sheltered hollows.—I have just measured some *Deodars* planted about seventeen years ago—some in low-lying parts of the grounds and park, and others in the open, where they feel the gales that sweep over our high and inland situation; and although all the trees were the same age and size when planted, those in the sheltered places are now nearly twice as tall and twice as broad at the base, and, besides, in much more luxuriant health than those on the uplands. The difference which shelter makes to all the more tender Conifers is so great, that no one should plant them without considering the matter well. In this locality such subjects as *Wellingtonias* make the most miserable specimens imaginable, if they do not die outright, whenever they in any degree catch the north-west, north, or north-east gales; while in the ravines, or under the shelter of tall trees, they grow very fast and look well. It is useless planting them anywhere else, as some proprietors have found to their cost in this part of the country. The *Deodar*, the *Aracaria*, and *Nordmann's Silver Fir* stand exposure best, the main difference between those trees on exposed sites and those in shelter being that the former are more stunted in their growth; but the past unfavourable winters and summers, which we have had during seven or eight years, have greatly injured *Nordmann's Silver Fir* and the *Deodar*, some of the latter having died. We have, I believe, a few of the oldest *Aracarias* and *Deodars* in England here, our plants having been raised from the seed first distributed by the Royal Horticultural Society; but they are by no means the largest, and but for their annual growth would probably be taken to be only half the age they are. Trees planted twenty years later have quite overtaken them. In all cold, exposed, high-lying localities I should therefore advise such trees to be only planted on the south side of old plantations, or rising grounds that are wooded, and the nearer they are placed to the shelter the better.—J. SIMPSON, Wortley.

SHORT NOTES—TREES AND SHRUBS.

Azalea mollis.—It may not be out of place just now to note that the *Azaleas* belonging to this showy section are blooming at the same time as the *Ghent* and other sorts, although it has been said that they would bloom too early, and that they would get injured by late frosts; some of the ponticums were in bloom first.—JOHN CROOK, Farnboro'.

Lilacs are flowering beautifully this year, and none better than the common Persian, the clusters of blossoms on which are unusually large and well coloured. Charles X. is still one of the best of the large-flowered sorts.—M.

Rhododendron corymbosum.—How can I get rid of rhododendrons in *Rhododendron*? They are eating all the flowers and the new shoots.—A. S.

FLOWER GARDEN.

HARDY PLANTS IN POTS AND PLANTED OUT.

So many kinds of hardy plants are just now in bloom, that perhaps more than at any other season do we realise the enormous wealth of floral beauty thus placed at the cultivator's disposal for decorative purposes. Perhaps it is unwise to grow too many sorts unless there is ample room. Not a few things are too leggy or weedy in habit, and these should find no place in a border where neatness and good effect are appreciated. In planting, to ensure that all the plants shall have fair treatment, and, not least, that all shall have the same liberty to display their beauty, it is impossible to avoid some kind of uniformity in arranging. It is where the wild-garden style of planting is indulged in, and the various suitable plants are grouped in big clumps, that uniformity may not only be dispensed with, but would be altogether out of place. One day, when at Maiden Erlegh, I was struck by a big mass of the scarlet *Geum*, which Mr. Turton had raised from seed and planted out in one corner of the kitchen garden to furnish out flowers. The effect was grand, and made one long to see such things universally grown in large clumps. A few days later I saw plants of this *Geum* starving in pots in a nursery—miserable examples of what the plant ought to be under free culture. I am not much enraptured with the nursery practice of keeping common hardy plants in pots. It is the rule of the trade, but the result generally is that the plants wintered in small pots get root-bound and stunted, and are long in starting again into growth when planted out, whilst they are so small as to be most disappointing to the purchaser, who finds he has to wait a year longer ere he can see the plant in its true character. Such things as *Japan Anemones* can be propagated freely enough by means of root cuttings, and of these I saw large quantities, but very stunted, in small pots. Were these turned out now into the open ground and then wintered, they would give customers ample satisfaction. The potting system is a costly one, and thus to the purchaser the cost of hardy plants is largely and needlessly increased. The rule may be needful enough in the case of scarce or semi-tender things, but in that of the great mass of plants it seems to me to be a mistake. Not only is the cost of packing greater, but that of transit also. I find that hardy plants lifted from the open ground, and a little damp Moss or short Grass wrapped round the roots, and then rolled in a piece of paper, and packed, travel well. I have before given some account of the admirable, though yet small, collection of hardy plants which Mr. Wildsmith has gathered together at Heckfield. With special pleasure I noted just recently the elegant *Primula Sieboldi* laciniata doing well in the herbaceous border and blooming superbly, the colour far exceeding in depth anything I have ever been able to get from pot plants. Several other kinds were also doing well. Those fond of double flowers may find in the richly coloured double yellow *Caltha* a brilliant companion to the *Geum*; it is a most effective border plant. The pretty lavender coloured *Veronica gentianoides*, with variegated leafage, is a very pleasing plant, and one which should find a place in all collections. *Iberis superba* forms a telling mass of pure white. Young plants of this at Maiden Erlegh had heads of bloom as fine as can be seen on *gibraltarica*. Large clumps of *Viola Mulberry*, *Fancies* (Blue King and White Queen), and of the orange *Cheiranthus Marshalli*, and the *Iberis superba* were indeed effective in the latter garden. Both double and single *Hydrangeas* seem to be doing unusually well this summer. They are blooming, not only profusely, but are brilliantly coloured. These, however, have not a long season, and want to be grown in good large masses to create anything like a striking effect. The blooms of the double kinds look well and last long in a cut state. A. D.

VENIDIUM CALENDULACEUM.

Now that graceful single flowered Composites have become so popular, we would direct attention to this beautiful plant, long ago introduced to our gardens from the Cape of Good Hope, but which, like a good many other plants, has until lately been almost wholly confined to botanical collections. It is, however, impossible to say



Venidium calendulaceum (showing habit of growth).

too much in its praise, combining as it does brilliancy of colour with elegance of form. Like several other plants from South Africa, it is not sufficiently hardy to stand the full vigour of our climate, but it flourishes admirably treated as an ordinary half-hardy annual. There is, however, no doubt that it is a true perennial if wintered under glass. Plants thus treated by the late Mr. Joad used to grow well and continued to flower till nearly the depth of winter. It is a free growing plant, some 2 ft. in height and 3 ft. in breadth, but always growing in a compact, rounded mass covered for several months consecutively with black-eyed golden blossoms, resembling those of the common pot Marigold (*Calendula*), though much brighter and more refined. It is not a difficult plant to cultivate; seed of it should be sown in a slightly heated frame in March, and the seedlings should be planted out in the beginning of May, in light friable soil on a warm exposure, a position in which the plants will continue to flower till October. There is considerable diversity in its seedlings both as regards habit and the size, shape, and shading of its blossoms, and careful selection in seed saving is needful in order to secure the best forms. It is admirably adapted for cutting from, as the flowers open and shut as regularly as when on the plant. It is well worth room under glass, as by this means its flowering season may be considerably prolonged, but its proper place is out-of-doors in summer. Seeds of it may be easily procured.

W. G.

ALPINE AND ROCK PLANTS.

We are beginning here to gather in the results of past years' experience, some of which it may interest such of your readers as are beginning to cultivate these interesting plants to hear. One of the errors we fell into at first and are beginning to avoid—not without the lesson of some severe losses—is planting choice and small plants and "strict alpins" in the neighbourhood of the stronger growing rock plants. These, though they are most ornamental and effective, are fatal neighbours to the first. I should, therefore, never cultivate them on the same rockery, and I should try to construct

The rockeries differently. The first should consist of large stones, giving considerable faces for the plants to trail over, and it may well rise to a considerable height; in fact, such a rockery fails of its full effect unless the sheets of bloom of different colours which it is adapted to grow—and to show—can be seen from a distance. It should be in full sun, not shaded by trees, nor so near to trees that their roots can grow into it; but it is a great advantage to have the shelter of trees sufficiently far off not to be injurious, but near enough to twist the sheets of flowers from the rocks down which they grow, and disfigure them terribly sometimes. It should be formed with the highest part to the south, and this face should be as nearly precipitous as is consistent with having sufficient ledges or beds of soil for the plants to root in and fall over the face of the stones in front. On this side may be planted such plants as require as much sun as can be got in this climate, and they are many. It should slope gradually towards the north, downwards, with broader beds or ledges, supported by large stones, and sloping to the level ground. The object of this is to form suitable places for plants which like some shade, though the slope should be gradual enough to allow broken sunlight to reach the plants, for there are few plants that are not the better for some sunlight. On the top of the rockery some small shrubby plants will have a suitable position, which will give the shade, or partial shade, needed by some plants. It is astonishing what effective masses of colour, rising one above another, may be got on such a rockery, equally beautiful when seen near or from afar. The creeping *Phloxes* (*P. subulata*) form masses of pink, only exceeded in brilliancy by the variety of *Saponaria ocyroides* called *splendens*, which is closer in its mass of flowers and brighter in colour than the ordinary variety, beautiful as it is when it is seen in a mass a yard or two in size, crowning the large stones and covering their faces. *Veronica rupestris* forms similar bold and conspicuous sheets of the most brilliant blue. Rock Roses (*Helianthemum*) give also striking masses of various colours—golden yellow, rose, and salmon-coloured. *Lithospermum prostratum* yields a purple-blue. *Iberis corneifolia* is very hardy and free flowering, and soon grows into large patches of the purest white. The common White Rock Cress (*Arabis albidia*) is very effective earlier in the year on such a large rockery, as also are the *Aubrietias* of various shades of soft purple. If the hardy *Clematises*, such as *Jackmani*, and *Atragene alpina* are planted at the top, so as to grow along and hang down the face, they are perhaps more effective, and certainly more natural, grown this way than trained up to walls or stakes. They creep over the bushes at the top and over the plants that grow close to the ground, or hang down the rocks. The Woolly Thyme (*Thymus lanuginosus*) is a good companion to the plants above named. A large sheet of it hanging over and covering an upright stone has a beautiful appearance; the soft glaucous green of the leaves, relieved by the small lilac flowers, has an effect like shot silk. A patch of the golden *Achillea aurea* in the right place lights up the other colours. Many *Campanulas* grow also into masses of flower close enough to hide the leaves. *Campanula Ela-*

tines is the earliest and one of the freest flowerers; but *C. muralis*, nesting in a corner, and the purple *C. pulla*, covering a compartment enclosed by rock, so as not to be overrun, are very lovely. *Silene alpestris* spreads into large patches quickly, starred by its exquisitely beautiful white flowers. *Acæna micropophylla* is interesting and pretty with its crimson spiny globes. The *Globularias*, too, succeed well on stones facing the south, and *Dryas octopetala* is suitable where it can be allowed space to cover a large surface. On the north side *Arenaria balearica* is effective growing up the rocks where they meet the base of the rockery, and *Saxifraga oppositifolia*, *Arenaria purpurascens*, *Saxifraga Hirculus*, and *Linnaea borealis* grow well on the northern slopes, also *Cyclamens* and *Primulas*; but these require to be guarded from being overgrown by the free growing plants I am advocating for such a large rockery, and are not quite in place there, unless a portion be reserved for them, and the same remark would apply to *Hepaticas*. Ferns, however, would be very suitable for the slope facing north. Suitable shrubs for the amount of shade required, and beautiful in themselves, are the Alpine Rose (*Rhododendron ferrugineum*), the pretty Whin (*Genista anglica*), and any small growing and not too dense shrubby plant, such as some of the *Veronics*.

Small plant rockery.—The rockery for the small choice alpins should be quite different. We have found one made as follows to answer well, both for growing the plants and for looking at them and tending them. Let it be about 4 ft. high at the south side, and steep, and about 5 ft. broad, sloping to the north, and as long as you like. All parts can be reached, and the small plants seen. One end should be of limestone, and the soil composed to a great extent of lime rubbish, or the mortar from buildings taken down. The general soil should consist of



Flowers of *Venidium calendulaceum*.

coarse gravel and leaf mould or peat, but there should be part where the soil is clayey, as some alpins only succeed in a tenacious soil. The stones must be arranged so as to give numerous clefts and crevices, care being taken that the narrowest parts are below and outwards, so that

the soil may not fall away. In these, strict alpine will grow well, and generally all small and choice plants; but there should be some large beds or spaces of soil left, as some plants which are reckoned as "rock plants" really grow better even on a well-raised border than on a rockery. This has rather surprised me, but I have found it so. For instance, *Acantholimon glumaceum* has grown well with me for many years and increased, but never flowered until this year, when some large patches which I removed from the rockery to a well-made raised border are showing flower plentifully. *Erodium Reichardi*, a sweet little flower, suitable from its size and habit to a rockery, succeeds better on a border, and the same with the pretty *Pentstemon confertus* and some others. By the way,

The mild open winter has proved fatal to some plants which have for many years previously grown well. *Gentiana verna* has disappeared, and several other sorts are looking worse this year than they ever did before. Even the hardy *Irises* are not doing as well as usual, and *Iris Kämpferi*, which had flourished and grown into splendid plants, has almost disappeared. The *Lilies* are, some of them, poorer than usual, but very early. Usually *Lilium Szozitjanum* is the earliest, but this year we have had *L. carnolicum* and *L. bulbiferum* out first, before May was over. The bog *Lilies*, however, such as *L. pardalinum*, are finer than usual. *Primulas* have been also very fine, and *Narcissi* particularly so. From these instances one would rather infer that the open, damp weather had been injurious to all but moisture-loving plants. But how is one, on this supposition, to account for the fact that some moisture-loving plants have not done so well as usual—for instance, *Trillium grandiflorum*? These apparent caprices, which are really no caprices, but must have a cause, if we only knew it, show how much our gardening knowledge is as yet deficient. Two plants that I have had for years without a flower have this spring flowered—*Astragalus monspessulanus* and *Hedysarum obscurum*. A new plant of the same genus, obtained from Zurich last autumn, has proved exceedingly beautiful and hardy, and may therefore be recommended—namely, *Astragalus adsurgens*, and another new plant from the same quarter, *Linaria anticaria*, is very pleasing, with beautiful foliage and pretty white flowers, shaped like the other *Toadflaxes*. *L. alpina*, that brightest gem of the Alps, has come into flower very early, and *Erinus alpinus* is flowering and growing better than I ever saw it. The winter seems to have suited this at any rate. *Doronicum austriacum* was in flower on the 1st of February, and has yielded a plentiful crop of cut flowers ever since, and it shows as yet not the slightest sign of giving out. It lasts very long in a cut state and is ineffective, more so than the famous yellow "Paris Daisy." It ought to be a popular border flower from such valuable qualities, and it is very hardy. *Lychnis diurna* flore-pleno, the double *Campion*, is a beautiful border flower which I should like to take this opportunity of putting in a word for.

All the flowers I have named are so easily grown and so free flowering, that one wonders to see so many gardens bare all the spring and early summer, until the eternal round of "bedding-out" plants comes back again with its brilliant monotony. Surely it can only be because people don't know of them. And this is my excuse for such a lengthy communication. Surely if the public could believe how easily gardens may be kept beautiful with a daily succession of new objects of interest, the days of bare gardens would come to an end, even in such an untoward climate as Lancashire.

Aigburth.

E. HARVEY.

Ourisia coccinea.—If anyone can give me a little more information about the cultivation of this interesting plant than that which has already been recorded I should be much obliged. The usual direction given is to grow it in damp, shady situations in peat or leaf-mould, but I see it stated in THE GARDEN (p. 353), that it requires to become potbound or needs a wall or something similar against which to run its roots. The two directions seem scarcely compatible, for I should infer that it is growing at Weybridge in a hot situation with rapid drainage. Which are we to follow?—J. C. L.

Lathyrus splendens.—I am led to suppose that the plant alluded to by "Chief" (p. 371) is *L. latifolius splendens*, a superior variety of *L. latifolius* sent out by Mr. Parker, of Tooting. The true *L. splendens* is an evergreen climber from Southern California, introduced only two years ago; it is in flower here and promises well, though the plants are still too small to show their quality. It seems to acquire large dimensions and is very floriferous, the deep purple colour of the blossoms being very pleasing, and different from that of the other species of *Lathyrus*.—MAX LEICHTLIN, Baden-Baden.

Geranium Endressi.—In looking over the back volumes of THE GARDEN a short time ago I was rather surprised that I did not meet with any allusion to one of our best border plants—one which was an especial favourite of mine at York. I mean *Geranium Endressi*, a Pyrenean plant of a very high order of merit. It forms a compact, almost hemispherical mass of foliage about 1½ ft. high, and blooms continually and most profusely from June to October, the flowers being of a very charming rose-pink colour. To me it always appeared to be a more refined and pleasing subject than the so-much-admired *G. armenum*. *G. Endressi* is particularly hardy and possesses an extraordinary amount of vitality, as is evidenced by the wonderful profusion of its bloom through so many months, and also by its seeds germinating freely after being kept for six years, a fact for which I can answer.—W. M.

A new double hardy Mimulus, Beauty of Sutton.—Several years, both in beds and borders alone or in combination, single *Mimulus*es in variety, spotted and blotched with the ground colours of every shade from white to red through cream, lemon, yellow, scarlet, and rose, have been the most brilliant outdoor hardy flowers I had from May onwards. They are so here now, with this exception that my former love for them is now largely centred in the above new rival which I received from Mr. Cannell early in the season; and to test its hardiness, at once planted it out. It has been flowering for the last month, and possesses the great merit, absent from the single *Mimulus*, of the blooms holding on persistently for a long time. It is altogether different from the old dotted small semi-double flower of some years since, and much more desirable.—W. J. M., Clonmel.

A Lupine.—A beautiful form of the old hardy *Lupinus* comes to us from Mr. Stevens; the spike of blooms 20 in. long, and the colours of a delicate shell-like, porcelain-blue. The old plant is in every garden almost, and we only want to know how to use it. It is a little too much "in evidence" after the flowering season is past perhaps, and therefore a colony in a quiet corner naturalised is a good way. The plant is naturalised in certain islands in the Tweed, and may be naturalised anywhere. We do not say that it is not worth a place in any garden (the finer forms are so), but the flower is perhaps rather short-lived to take much trouble with the plant in a mixed border, except in those excellent mixed borders where the makers have the sense to do what we have recommended for many years—that is, to cover the poor parched soil with *Hepaticas*, *Christmas Roses*, *Omphalodes*, and other dwarf green plants, which shade and relieve the surface, and then the other plants when they go out of flower do not seem so hard and stiff upon it as they did in the old mixed border, and as they do now in the

ghastly borders in the Kensington Gardens by the Bayswater side. Let anyone who desires to see what a flower border should not be in June glance at these.—Field.

GARDEN FLORA.

PLATE CCCXL.—BRODIAEA LAXA.

THE accompanying plate represents five varieties of the most beautiful and perfectly hardy North American bulb, hitherto known in this country under the various names of *Milla*, *Triteleia*, and *Seubertia*, but henceforward, according to recognised American authorities, to be classed with the *Brodiaeas*. My experience of these bulbs proves that they resent the attempt to grow them in pots, or anywhere but in the open ground, where each bulb sends up a brace of long leaves early in the spring, and from the centre of these, usually after they have disappeared, about the month of May, comes a stout flower-stem, bearing a more or less numerous bunch of flowers, according to the strength of the bulb. The flowers remain a considerable time in beauty, and usually ripen seed freely, but the bulbs are exceedingly slow as regards increase, seldom or never producing an offset. Whether the varieties reproduce themselves true from seed I do not know.

W. E. GUMBLETON.

THE ORME'S HEAD IN MAY.

THE Headland is formed of carboniferous limestone, the rounded buttresses of which indicate beyond doubt the action of fire and fusion at some remote period of our world's history. The flowers are such as delight in the mountain limestone: *Cotoneaster*, *Rubia*, *Linosyris*, *Silene nutans*, *Hippocrepis*, and *Epipactis rubra* are all found on the headland. In my morning walk I noticed the *Salvia Verbenaca* (Wild Sage) just opening its spikes of purplish blue flowers on dry banks overlooking the sea, while the rocky wall was covered over profusely in places with the Sea Cabbage (*Brassica oleracea*), the original, as we are told, of all the varieties of garden Cabbage. Far above, in the golden sunshine of the early morning, the swifts were racing—chasing each other, and screaming for very joy. All the swallow-tribe make their home on the ledges of the Orme—swallows, martins, and swifts. The rarer Rock Rose (*Helianthemum canum*) had opened its flowers early in May, and many were already in capsule. Indeed, I usually find that this species begins to seed before the common one opens its flowers. The dark dotting of the hoary leaves is particularly noticeable in this plant, which clings closely to the ground by means of its woody, wiry stems. It is a lover of the mountain limestone. With it, and equally attached to its home, is *Potentilla verna*, which I have also gathered on the magnesian limestone near Doncaster—one of the earliest of the group to come into flower; it is now fast passing into seed. On nearing the lighthouse, when half your walk is done, the notes of the Cornish chough are heard. These birds associate in flocks of six or eight. Their notes differ from those of the jackdaw in being less harsh; their call-note, too, is more melodious. I have often observed them when feeding, their red legs and bill being easily seen by means of a good field-glass. The wheatear and stonechat just seem to love the rock-strewn slopes of the Orme, often greeting your ear with their wild, solitude-loving song, the rock Pipit (*Anthus obscurus*) joining in with his own peculiar notes. Near Gogarth Abbey, on the descent back to Llandudno, I used to gather beautiful spikes of the Bee Orchis, but I fear now this lovely Orchid is lost. I counted fully half-a-dozen spikes some twenty years ago on one bank, but plunder and pillage have done their best to eradicate it. *Medicago maculata* finds still a home near Gogarth Abbey. I once had this plant sent me from Dunluce Castle as the Irish Shamrock, with a true drop of



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St. Patrick's blood in its veins. One of the Boraginæ tribe, the *Cynoglossum officinale*, a lover of waste ground (as John says), especially near the sea, was just opening its lurid red flowers. I saw large branching plants of it. The Thistle, that is the most common at Llandudno, and is just beginning to flower, is *Carduus tenuiflorus*; it is a true lover of our west coasts. The little Sea Stork's-bill (*Erodium maritimum*) grows profusely on the Conway side of the Orme's Head. You might cover young plants, capsules and all, with a florin. It loves warm places near the sea, hence its special habitat. The most provoking thing is that you can only seldom gather it in flower. The petals are usually obsolete or inconspicuous. It clings closely to the sandy ground, and the leaves differ in being lyrate rather than pinnate, as in its two relatives. I would mention one other plant that binds together the loose, shifting sand on the coast; it is the *Carex arenaria*, that performs the same part among Sedges that *Ammophila* does among Grasses.

PETER INCHBALD, F.L.S.

Llandudno, North Wales, May 23, 1882.

KITCHEN GARDEN.

POTATO SELECTION.

THERE are doubtless many practical men and even more amateurs who would welcome a discriminating, yet concise, list of the sorts of Potatoes most suitable to our climate. It may be thought that the descriptive lists issued by specialists and the nursery trade generally are sufficient for all practical purposes, but too frequently they are misleading, and, therefore, sorts are grown which would not be were their qualities better known. The trade does not trouble itself to any great extent to ascertain by actual trial in a variety of soils and localities, and by the crucial test of cooking at different times of the year, those that best deserve extended cultivation. A good tuber should have, 1st, good quality, i.e., it should not be wet, or too waxy, but mealy and dry; 2nd., flavour, an agreeable nutty one being generally liked; 3rd, cropping capabilities; 4th, form, the outline pleasing, free from unsightly knobs and deeply sunken eyes. Colour is not of much consequence when not imparted to the flesh. It should also be stated at which time of the year the kind is at its best for table use.

It seems a tolerably well ascertained fact that some kinds of the Potato have in the course of years actually deteriorated. They do not always bear out what was once reported of them. The older sorts of Kidney possessing that first of all qualification of a garden Potato flavour, were all of them only very moderate bearers, at least if adjudged by the productiveness of the later American and English kinds, and it was in the nature of things, that they should make way for the more abundant food producers of to-day. But these new sorts, although fine in form are deficient in flavour, and it is a matter of fact that some of the old fashioned ugly tubers, with deep eyes, now relegated to the garden of the cottager, stand far higher as regards flavour than some of the much vaunted exhibition sorts. Hybridisers should therefore look to this. It would also be gratifying to know which sorts produce the best results as regards all points, in all kinds of soils, of course without reference to the season, being either wet or dry. The whole matter requires classifying, and that can only be arrived at by cultivators furnishing notes on the kinds grown stating the sorts, the quality and character of the soil, how manured and in what part of the country, and more especially full particulars in regard to shape, texture, flavour, cropping.

The last show at the Crystal Palace, although furnishing much valuable data, concerning some of these points, must perforce be silent on others. Size and beauty of form and surface would be the determining points, in the eye of the judges, for we could not expect them to become a tasting committee, so as to be capable of deciding as to the cooking qualities. Meanness seems too much

over-rated in choosing kinds for planting as this, and a want of flavour, very often go together. I think our Potatoes would be much better, and more disease resisting if we gave them more space at planting time, say 4 ft., by 2 ft. for those, with sparse haulm; and 4 ft. by 4 ft., for strong growers, and by never planting in a wet furrow. I find shallow holes made with a heart shaped hoe, with a line as a guide, the easiest way of planting, dibbling being about the worst method. On wet soils, if the Potato must be grown on such, it would be better to plant on the surface at wide intervals, and mould up the plants from the planting time onwards, and by not covering up the ground with the haulm from thickly planted sets, the earth would naturally get drier in the summer than it usually is.

SYLVESTRIS.

CAPSICUM TOMATO.

THIS Tomato forms apparently a connecting link between the Capsicum and Tomato, hence its name. It forms a vigorous, upright, and much branched bush. Its fruit is regularly channelled, dark green when young, but afterwards becoming bright red; the flesh is dry, somewhat scanty, and rather insipid. As it does not come to maturity in the climate of Paris, it would



Fruit of the Capsicum Tomato (natural size).

naturally require the protection of a glass roof to ripen it in this country. A curious fact connected with this plant is that secondary fruits push from the eyes of those first formed. In the first place, there is a sub-conical protuberance which becomes deformed as it increases in size, and as regards colour it differs in no way from the parent fruit.

JOHN CORNHILL.

CUCUMBERS ALL THE YEAR ROUND.

ALTHOUGH the system of growing Cucumbers in houses heated with hot water is now half a century old, and every horticultural journal contains a complete calendar of operations, we still find young men who do not aspire to express speed asking for the most simple details which any one year's volume of this paper would convey if they would only read and endeavour to help themselves. In a letter now before me a young gardener asks for hints as to training and general management of the Cucumber, and as he is only one amongst several applicants for information upon matters trifling in themselves, and all success is made up of trifles, permit me to give him and others a faint outline of the method I have adopted for obtaining Cucumbers all the year round. In our forefathers' days a bed was made up for the commencement of the campaign early in January, and the cutting of the first Cucumber was an event which travelled through every garden for several miles round. Modern growers commence in the autumn by thoroughly cleansing

a section previously used for Melons, from which they commence cutting in November, and follow on with later sowings, which give a supply of fruit until the following summer, when brick pits and manure frames complete the round of the season. In my own management I make a sowing of Telegraph about September 10; the plants are kept near the glass in a frame, and receive one or more shifts to prevent them from becoming pot-bound, provided the house in which they are to fruit is not ready. The latter is divided into small compartments with hot-water pipes for giving top and bottom heat. The plunging pit is chambered, though fermenting material, consisting of Oak leaves and a small percentage of stable manure, is used in preference to tan for plunging the pots in, and for producing a soft atmosphere so congenial to the Cucumber through all its stages of growth. The bed having been prepared, clean pots 16 in. in diameter are plunged, nearly touching each other, along the front of the bed, but not too near the top-heat pipes, as the dry heat of the latter often fosters spider, which soon enervates and ruins the plants, now being forced dead against Nature. The next consideration is the

Soil or compost, and as so much depends upon the selection of a suitable material for winter use, I give preference to a light, sweet, virgin loam from the igneous rock, which has been stacked for a few weeks to destroy the herbage, a small quantity of heavier turf from a limestone craig, and a liberal admixture of charcoal or old lime rubble. These are used in a rough state, the finer particles being rejected, as Cucumbers, much as they delight in moisture, soon go wrong in a close, heavy compost, from which water cannot pass as freely as it would from an Orchid. Manure is never used in a solid form, as it only encourages worms, induces a gross habit which cannot be sustained through the dark dull days of December, and becomes exhausted before the plants require the support which can always be given at the proper time in the form of warm diluted liquid or guano water. Having filled the pots two-thirds full, and assuming that the heat of the bed stands at 100°, we defer planting out until the soil is thoroughly warmed through and stands at 85° to 90°. One plant is then placed in each pot, and trained to a straight stick leading to the trellis, which is made of tightly strained wires, some 15 in. from the glass. A little water is given to settle the soil about the roots, and the plants are slightly shaded during bright sunshine for two or three days. They are then grown with an abundance of moisture in a temperature ranging from 70° at night to 80° by day, when a little air is admitted, at the apex of the house only, to prevent them from becoming "drawn." This is taken off in time for the house to run up to 85° or 90°, with sun heat, when every part of the structure is again syringed and the blinds are let down at night to economise or dispense with fire heat. When the leaders reach the trellis they are trained upwards until two-thirds of the allotted space is covered; the points are then pinched out, and lateral growths are thinned out and tied in horizontally 12 in. apart. If the supply from the frames is still equal to the demand, these laterals are stopped at the first joint, when every sub-lateral shoots, and in turn stopped at the first joint beyond the fruit; large flakes of warm turf and lumps of charcoal are then placed over the surface-roots, pruning is commenced, and the plants continue in bearing until the main batch of winter fruiters come in—about the middle of January; they are then destroyed to make room for early Melons, or every alternate plant is cut out to give more room to those left if it is thought desirable to keep them through the month of March, when good fruit is most in demand and least plentiful.

The second sowing is made about the 21st September; the strongest plants, also in 16-in. pots, are trained under the north roof of a Pine stove, but they are allowed more head room as stopping is discontinued through December and the first part of January, and a thin board is placed in front of the pipes to prevent water from the syringe from generating scalding steam when

inclement weather necessitates hard firing. The pots for these plants require more drainage; light turfy loam only is used, and fresh leaves in a fermenting state are incorporated with the old, and placed round the pots as often as the bottom-heat shows signs of descending to 80°. To prolong the season after this batch of plants has been removed, not because they are exhausted, but as a part of our system to make room for more Melons, the weakest of the second sowing of plants are planted in an ordinary heated pit where the minimum temperature frequently touches 60°, and the bottom heat does not exceed 70°. Here winter fruiting is not attempted, but they come into use about the end of February and do good service all through the spring and early summer. In the general routine of details it is very important that a moisture-loving plant like the Cucumber should be regularly supplied with water at or a little above the temperature of the soil in which the roots are growing, and the same rule applies to the water used for syringing. Of equal importance is the admission of air, particularly in cold weather, and on no account should a cold current be produced by giving back and front air at the same time; indeed, it rarely happens that front air is required at all, unless the weather is boisterous, and the top lights cannot be opened with safety. The best, and perhaps the only safe, way is to fix upon a maximum temperature of, say, 85° to 90°, and then to admit air to prevent those figures being exceeded, but never to lower the temperature, as it is to sudden depressions that the commencement of nearly all the Cucumber grower's troubles may be traced.

Shading. In the ordinary acceptance of the word, should not be indulged in to any great extent. Sometimes a sudden change from dull to bright weather, or the rain of a heavy crop of fruit, may render relief to the old foliage necessary; but these causes are only temporary, and the last-named may always be avoided, as heavy cropping cannot be too strongly condemned. The insects to which house Cucumbers are subject are red spider and aphids of different kinds. The first may be kept in check by good culture and late syringing every evening with a weak solution of Gishurst compound—say, half an ounce to the gallon of water—or clear sulphur water may be applied with the syringe when the pipes are not overheated. Aphids is sometimes introduced with other plants or crude soil, and white thrips gain a footing where the plants are kept too dry or inefficiently syringed. The best remedy for these is persistent, but mild, fumigation when the foliage is dry, a steady bottom heat of 80° to 85° from fermenting materials which throw off ammonia, and a constant and abundant supply of atmospheric moisture, which may be produced by damping every available space without wetting the hot-water pipes when strong fires are going. We sometimes hear of mildew, for which flowers of sulphur is the best remedy; of canker, which may be checked by the application of quicklime to the parts affected; and last, and worst of all, a disease called gumming, the which, together with all the ills I have enumerated, advanced growers have annihilated by the application of the Turkish bath.

Varieties.—Although a great number of good kinds have been introduced, nine-tenths of the Cucumbers now grown are of the Telegraph breed, and for all-the-year-round culture I have not yet met with anything to surpass a good strain of this general favourite. Blue Gown and Tender and True, two very handsome and excellent Cucumbers, also occupy the first rank either for table use or for exhibition. Carter's Champion, Kenyon's Improved, and Munro's Rabbey are well adapted for winter culture, as they produce an immense number of fruit of excellent flavour and, being small, are most suitable for private use where a fresh Cucumber is required every day.

W. C.

Incomparable dwarf white Celery.—Though now, May 20, I have here a batch of this excellent dwarf Celery just on the point of starting

into bloom, it would be difficult to find a longer standing Celery than this, and it shows that where a long supply is wanted this kind will help to keep a stock of Celery going almost till Celery is in again. It is unfortunate that the true Incomparable is not always to be got. Some years ago, when the Celeries were under trial at Chiswick, the stock of the Incomparable sent from here was the only true one, some of the samples being tall and quite out of character. I grow my own seed, and have done so for years, and, having no other sort, can always keep it true.—A. D.

Saltin Asparagus beds.—Various are the opinions expressed as regards the merits of salt as a manure for Asparagus, but in determining its value it should be borne in mind that soil plays an important part in the matter. Where it grows naturally the soil is light and sandy, and the atmosphere being impregnated with sea air, salt is deposited to some extent by every shower that falls, but to apply it to the same extent to heavy soil in inland stations would probably be injurious. When living in Suffolk close to the coast, I found the culture of Asparagus a very easy affair; beds that had been known to exist as long as the oldest inhabitant could remember were still producing very fine crops, and it was customary to give them a dressing of salt just before the shoots began to appear both to assist the growth of the Asparagus and to check that of weeds. But in this part of Kent, where the soil is naturally retentive, I am doubtful if salt at any stage could be given with advantage, as it tends to make the soil damp and adhesive, and the sorts perish in such soil in winter. Except in beds specially prepared, a dressing of wood-ashes or sand would have a more beneficial effect than salt. I have sometimes applied salt when the plants were in active growth, but care must be taken that it does not lie long in actual contact with the stems, or it will injure the tender skin and possibly destroy the shoots. If employed at all, salt, like other strong remedies, needs to be used with caution, guided to a great extent by the nature of the soil.—JAMES GROOM, *Linton*.

Late Potatoes.—In autumn and throughout the winter many kinds of Potatoes are of the finest quality when cooked and placed upon the table, but good eating ones are not so plentiful in April and May. During those two months the new ones are seldom ready in sufficient quantity to dispense with the old tubers altogether, and in many instances these are the only sort available; so that the question, Which is the best late Potato for use in April and May? becomes a matter of no small importance during the months in question. This year and in former years as well we have had good opportunities of trying different late Potatoes, and Paterson's Queen has been found to be the best, as it retains its agreeable flavour to the end, is slow in sprouting, and always good in colour. Next to this comes Victoria, and then Magnum Bonum; the Scotch Champion at this time being quite out of the list, as the majority of the tubers when cooked and cut up are purple and black at the core, consequently deficient in flavour and of no value as food. Some say they cannot relish old Potatoes after having their first dish of new ones; but I think there would be little occasion to say this were Paterson's Queen in general use.—J. MUIR.

SHORT NOTES—KITCHEN GARDEN.

Lettuce Blonde d'Étée.—This variety is now much grown in France, being held in high esteem by the Parisian market gardeners. It is intermediate between the Cos and Cabbage varieties, hearts in well, and is less liable to bolt than most other kinds.—J. C. Duffett.

Bean, Flageolet d'Étampes.—This appears to be at present the favourite Bean of the French growers, especially for forcing. It is of dwarf growth, very prolific, and of good quality. It is much grown for market.—J. C. B.

Mushroom beds.—These may be formed at any season, but the best times are September and February; a bed sown in September will last through the winter months.

FRUIT GARDEN.

SYRINGING ORCHARD HOUSES.

I quite agree with the greater part of "P. G.'s" useful and seasonable remarks on the management of the orchard house. I must, however, after twenty years' experience of fruit culture under glass, demur to what he says, with excellent authority on his side, about the vigorous use of the syringe night and morning. I am disposed to recommend a very cautious use of that indispensable instrument in sunny weather like this. A burnt child dreads the fire, and I am persuaded that a Peach or Nectarine tree in a south aspect under glass, whose leaves have been burnt owing to the sun scorching them after a vigorous use of the syringe even the previous evening, and much more in the morning, dreads, if, indeed, it has feelings, the drenching prescribed. Every drop of water is as a lens or burning glass. The trees must suffer considerable injury when their leaves are thus scorched, and what can be more unsightly than a number of leaves discoloured by burning.

A gardener I know in Sussex, who had followed this stringent rule, tried to remedy matters by obscuring the glass, but I need not inform you that this was choosing a still greater evil, for the fruit, deprived of light, ripened badly, and was flavourless. I never syringe when I have reason to expect a sunny morning, and I am bold to affirm that trees do not require such a vigorous use of the syringe as is commonly recommended. My trees, in a house 120 ft. long and 14 ft. wide, do very well without it. They are, with only a very few exceptions, looking very fresh and vigorous. I never had less red spider than this year, or aphids. With regard to these last I find that prevention is better than cure, and with this view I give my house a thorough fumigation before the blossoms appear, and after that the mixture of Quassia and soft soap prescribed in Rivers' "Orchard House," is all that I want to keep down this pest.

I need not say that I avail myself of every opportunity of the vigorous use of the syringe in cloudy or wet weather, when there is no danger of scorching; keep my paths well watered, and a number of zinc pails along my house constantly filled, and I believe the evaporation from this source makes up for the absence of dew. If I see red spider I syringe with a not too strong solution of Gishurst.

H. W. HODGSON.

The Rectory, Ashwell, Baldock.

FRUIT GROWING FOR MARKET.

In various parts of Kent fruit growing for market is evidently extending, and although many say we are overdone with it already, I question if it is as yet more than in its infancy. As we acquire greater perfection in converting perishable fruit into jam, we shall check to a great extent the losses attendant on what is known as a glut in the market, and I find that very much of the produce of the fruit trees now being planted is not to go into the market at all, but to be made into jam. Around Swanley, Oak woods and underwoods are disappearing, and the land is being trenched and planted with bush fruits and Strawberries, a proof that some at least have faith in the demand becoming some day larger than it now is. A notion prevails that Kent enjoys a monopoly as regards good soil and climate; but, after some little experience both in Kent and other counties, I feel convinced that this is a delusion. There are tracts of land in Kent specially adapted for some kinds of fruit, I admit, but not better than are to be found in other counties. In the neighbourhood of Swanley the soil is anything but tempting when first broken up, and many of the tracts planted with Strawberries are

below the average of ordinary arable land as regards quality, but if cultivators have the necessary energy and means to make the desert smile it can be done here as elsewhere. This is proved by the glowing beds of lovely flowers which may now be seen in the Swanley Nurseries. J. G.

STRAWBERRIES AND THE PAST WINTER.

THE autumn and winter, instead of being unfavourable to Strawberries, appears to have just suited them; never have I seen them so full and fresh of leaf and blossom as now, the stems of the trusses they are sending up being stout, and the heads crowded with large bold flowers, which, if the present favourable weather continues, must set well and regularly, and yield an abundance of fine fruit. Here we never let our plants stand longer than two years, and we always plant those which have been forced, which we consider the best for making beds with, as there is quite a season saved; and they are established and strong when put out, and our experience of them is that they always yield finer fruit, and more of it, than those got from runners. This is only what one might expect, as plants prepared for forcing have the best treatment everywhere: they are always well watered and cared for, have plenty of liquid manure, and the richest of soil to grow in, and, therefore, cannot fail to develop fine crowns. If they suffer at all, it is after being forced; but this we never allow here, as all that are wanted for planting are got into the ground at once, immediately they are turned out, instead of standing starving in their pots, and losing their roots from being dry, as they soon do when the balls shrink from the sides. In planting forced plants out, they should be sunk a couple of inches or so below the ground level, and the soil left hollow round them, so as to form a basin-like receptacle for water, which they will require several times during the season. Not only is this depression in the level of great use for holding sufficient water to thoroughly soak the bed of earth, but the gradual landing up of the soil caused by hoeing is of much benefit to the plants, which form so many fresh roots round their collars. While on the subject of Strawberries, I would just point out the importance of early littering down, as it may be done in half the time now that it can be later on, when the foliage spreads more, and the stems are borne down by the weight of the fruit. The greatest advantage, however, that is derived from early littering down is the shade the straw affords the ground; the plants receive great benefit by being kept moist and cool, as the litter shuts out the heat and prevents evaporation, and thus enables the Strawberries to swell.

J. S.

SHELTER FOR GARDENS AND ORCHARDS.

It is frequently remarked that we learn more from our failures than from our successes; and if this be true, the present is a suitable time to once more refer to the value of shelter for gardens and orchards, while on every side may be seen traces of the effects of the storm of April 29. Every tree and bush that was exposed to it looks scorched, not only on the cold north or east side, but also on the side on which we look for genial breezes, viz., the points between S.E. and S.W. In Kent the gale, commencing in the S.E., worked round to the west, where it died away. The weather during its continuance was not exceptionally cold, and it is singular that, after congratulating ourselves that we had, for one season at least, escaped with a minimum of northerly and easterly gales, on nearly the last day of April our trees were stripped not only of the crop, but of their foliage as well, and that by a wind blowing off the Gulf Stream. About Maidstone, where the undulating character of the soil gives such a great variety of aspect, the owners of the usually favoured nooks screened from the north and east by higher land behind are now the greatest sufferers, while those on the northern and eastern slopes have sustained but little damage. I may mention one of our own orchards, which, from

abutting rather closely on the pleasure grounds, has been what would usually be termed over sheltered, for it is screened all round by a thick belt of trees—on the south side by Scotch Firs planted on a raised bank. In this orchard not a leaf is browned, and it has been most prolific in all kinds of seasons, even trees that are shaded bearing excellent crops. Of course, in an ordinary case, it would neither be advisable nor desirable to have shelter so close as to shade the crop; but I feel more thoroughly convinced than ever I did that shelter from cutting winds from all points of the compass, if not afforded by the nature of the situation, ought to be provided in the shape of belts of trees. We shall have in this district, owing to the gale, very variable crops. They have suffered very little from frost, but the crop will be regulated by the amount of shelter which the trees received from the gale. When riddled in foliage, it is impossible for the fruit left to mature properly. The present partial failure should lead us to beware of cutting down or removing any existing shelter, but rather to augment it in every way possible. Our orthodox rules of planting shelter only on the cold quarters have been sharply assailed this year, half our crops being destroyed by wind from other aspects. Last October, too, our trees were equally roughly handled from the points which we have usually thought best left open; and in periods when the temperature is above the average we appear to be more liable to destructive gales than when it is lower. If we cannot avoid them, therefore, we must at least try to mitigate their effects by planting shelter.—J. G., *Field.*

SIDE CLEFT GRAFTING.

IN the spring of 1881, I practiced with much success this method of grafting. I cut the scions with shears into pieces of one, two, or three buds, with from 1 in. to 2 in. of wood below the lowest bud, but prefer scions with only one bud. I then sat myself at a table, upon which a soft piece of pine with a smooth surface has been fastened, and with the thumb and finger of the left hand take hold of the scion at the top bud, and rest its lower end on the board, holding the scion nearly perpendicularly, while with a thin, sharp knife, I make a downward oblique cut in a straight line five or six-eighths of an inch long, to and through the centre of the lower end of the scion, thus making one side a wedge. This done, I turn the scion over, lay the cut side flat down upon the board and shave off its other side in like manner, but about one quarter of an inch less in length than the side first cut, making a sharp wedge, say six-eighths of an inch long on one side, and four-eighths of an inch on the other side. I use a budding knife, and scions can thus be prepared with much rapidity and uniformity. I generally prepare about thirty scions in this way at a time, and put them in a dish with water, to keep them fresh, and then immediately proceed to use them.

Inserting the scions.—If the limb or stock is 1½ in. thick or more, and sufficiently firm, I take a thick, sharp chisel $\frac{1}{4}$ in. to $\frac{3}{4}$ in. wide, and with a hammer and the longest or straight side of the chisel inside, next the stock, make a cut obliquely downward into the stock, towards its centre, through the bark and into the hard wood, deep enough to receive the whole of the wedge part of the scion. Then with the hammer I drive the scion tightly down into the cut, with the longest side of the wedge inside next the stock, so that when done the scion will stand off from the stock, at an angle of about forty-five degrees, or about the angle that young limbs usually make with the stock from which they grow, and so that the cut bark on the shoulder of the longest side of the wedge will rest firmly against the cut part of the bark of the stock where the chisel first entered it. Or, with a thin, sharp knife blade and the hammer, I make a broad cut downward in the same direction, and of the same depth, into the hard wood, and set in this cut two scions diverging like the sides of the letter V. It is safer not to drive the scion down quite to the shoulder, than to drive it at all past

that point; for if driven too far, no part of the cut bark of stock and scion will touch each other, and the operation will fail, while if not driven quite to the shoulder the cut bark on each side of the slope on the scion will cross and touch the cut bark on the stock, and will almost always thus form a union. If the scions are to be set in a limb or stock too small to stand firm under the hammer and chisel, then with a thin, sharp knife blade I make a straight oblique cut down and towards the centre of the limb or stock into the hard wood, deep enough to receive the wedge part of the scion, and then set the scion in this cut precisely as in the cut made with the chisel. Stocks and scions of nearly the same size can be grafted in this way with great rapidity and success. But of course, the smaller the stock, the more nearly perpendicular will be the cut in it to receive the scion, and when set the scion will, in many cases, be nearly parallel with the stock. And when the scion and stock are of nearly the same size, I fit one side at least of the scion with one side of the stock. When the scion is set, if the stock is too small to close upon and firmly hold it, I tie the stock and scion as in other processes; but in all large limbs and stocks, if the operation is fairly well done, the stock will hold the scion firmly without any ligature. The scion being thus set, if not tied, I next with a quarter or half-inch wide flat sash paint brush, fill every part of the cut about the scion with melted, but not hot, grafting wax, or with cold, liquid grafting wax, and if the graft has been tied, I cover all exposed cut parts, and then bandage with the wax.

In root-grafting young stock I always tie with woollen yarn and wax all the parts in the above manner, except a line on the bark of the stock or root, which I leave exposed to the ground and weather to rot off as growth proceeds. In all cases I leave the end of the stock an inch or so longer than the end of the scion, so that buds on the stock may draw the sap up to and above the point of intended union, and this greatly aids the success of the operation. When the scion starts to grow, I rub off the sprouting buds on the stock, and in time cut the stock off just above the graft, in all cases where the scion is set at or intended to grow from the end of the stock. But in re-topping large trees, and in grafting limbs, I frequently put in a scion near the end of the limb by this process, as in the end by other methods, then set other scions along the limb in its sides whenever new branches are desired, even in a limb or trunk 6 in. or more in diameter. With care and good judgment, a tree can thus be made symmetrical, and long, bare limbs can be covered with a new growth of branches. But of course, the scions that are nearest the end of the limb, will push the most vigorously, and the strength of the growth of all will depend largely upon the extent to which the tree is headed in or cut back. To sum up some of the advantages of this method as they impress me, I submit: 1st. That scions can be set far more rapidly than by any other process. 2nd. That the operation is more uniformly successful. 3rd. That in most cases all tying and untying as growth proceeds, and re-tying to prevent blowing out, are dispensed with, and the scion stands firmly in the hard wood from its first insertion, and is able to take care of itself against ordinary winds. 4th. That limbs can be thus provided whenever taste or utility may suggest. In all other methods of side grafting, I believe the union is attempted to be made only in and under the bark, and such grafts are apt to be blown out, unless time and care are bestowed on them while growing.

Short scions.—Let me add that there are great advantages in using short scions—one bud or joint is enough—because there is less surface for evaporation, which is a frequent cause of scions failing to unite with the stock. They are also less liable to be knocked loose by birds perching on them, or by other means; and the nearer the new growth starts from the stock, the less is the leverage for the winds to act upon, and the less the danger of the graft being blown

out. As an additional guard against evaporation, I always, when waxing the grafts, cover the top of the scion with grafting wax. During the past winter I have collar-grafted by this method some twenty-five hundred pear and plum stocks, and shall set them out this spring, with hopes of much success. In cases where the stock or limb to be grafted is more than three-quarters of an inch thick, it will be best to set scions in the end of it, by ordinary cleft grafting, or by crown grafting under the bark, and at the same time put in scions in the sides of the limb or stock as wanted. These grafts in the end of such large stocks or limbs will be needed to grow over and heal the stump properly.—*Gardener's Monthly*.

INDOOR GARDEN.

THE CYCADS.

THE fast increasing demand for plants of a permanent, noble, and graceful habit consequent on the improvements which have lately been made in the style of indoor gardening has resulted in bringing to the fore many fine Palms and other plants which previously were either forgotten or unknown. The characters most essential in plants intended for use in corridors, halls, and grouping around statuary in large conservatories, &c., are not to be found amongst the ordinary flowering or fine-foliaged inmates of our plant houses; and, therefore, though there are some well-known plants naturally fitted for such purposes, there yet remains an almost endless variety of noble-foliaged plants whose claims have only to be properly considered to obtain for them the places in our gardens which they deserve. To such belong many members of one of the noblest Orders in the vegetable kingdom, viz., the Cycadeæ, and the object in view now is to direct attention to some of the best and most distinct amongst these plants. It may be well, however, to state at the outset that the nomenclature in this case, like that of Palms, is involved in much confusion, a circumstance owing partly, no doubt, to the close resemblance which many species, otherwise distinct, bear to each other in habit and leaf character, and partly to the many unauthentic names which have been attached to some of them at various times and by various persons. At Kew, however, where there exists the finest collection of these plants in the world, steps are being taken to re-classify them on such a basis as will reduce the confusion just adverted to to a minimum.

Cycads are all natives of tropical or temperate climes, none of them being found within the reach of frost. Some, such as the genus *Encephalartos*, all of which are confined to Tropical South Africa, thrive in a dry temperature and without much water at the roots, whilst others, such as the *Zamia* and *Cycas*, require a moist atmosphere

and a little shade. In foliage they are a good deal alike, though there are at least two very anomalous genera in the group, and as regards size we have a great range between the puny *Zamia pygmaea* and the gigantic *Encephalartos* and some *Cycas*. A collection of these plants at least equals that of the finest and noblest Ferns, as may be seen in the Palm stove and other houses at Kew. In considering their respective claims from a decorative point of view, let us commence with the best known and most graceful group, viz.—

Cycas.—The plumelike deep green foliage and Fern-like habit of the old *C. revoluta* have always from the time of its introduction—150 years ago—caused this plant to retain a first place among fine-foliaged plants, and the equally graceful, though taller growing, *C. circinalis* is almost as well known. Beyond these two kinds, little is seen of the genus outside botanic gardens; and if we except one or two other species, there is not sufficient distinctiveness in a horticultural sense to warrant a recommendation of the other dozen or so kinds as very desirable acquisitions. *C. revoluta*, a native of China, is so well known

has been stated that this species will thrive in a greenhouse, as it has already stood for some time in a large conservatory, the temperature in which was at times down to zero. Of course, this must mean the zero of a centigrade thermometer, which is the freezing point of Fahr.; but even this is lower than this *Cycas* is likely to bear with impunity. A plant of this character, which is a native of Siam, one of the hottest countries in the world, is not likely to thrive in any house where the temperature falls below 50°. At Kew there are two fine specimens of this plant growing in the Victoria house. *C. gracilis* is a handsome Australian species not unlike *C. siamensis*, the only difference, perhaps, being the thin texture of the pinnae in *C. gracilis*. Other Australian species are *C. intermedia* and *C. undulata*, both of which are near *C. gracilis*; *C. Normanbyana*, with graceful narrow pinnae, *C. Cairnsiana* and *C. media*, a trio of very near relationship as far as can be judged from young specimens; *C. Ruminiana*, *C. Rumphii*, which is perhaps a form of *C. circinalis*; *C. glauca* and *C. neo-caledonica*, both of which are not unlikely to prove the same species. An African species, *C. Thouarsii*, is a noble growing

kind with broad pinnae, but in other respects resembling *C. circinalis*.

Encephalartos, or Kaffir Bread, is a genus confined to South Africa, and possessing characteristics belonging to many members of the African flora, namely, extraordinary development of stem, rigidity of foliage, and other characters often peculiar to plants from that part of the world. The Elephant's-foot, *Naras*, *Welwitschia*, *Aloes*, &c., are examples, more or less familiar, of the curious structure of some African plants, which, along with others equally striking, are to be seen in the Kew collection. E.



The Kaffir Bread (*Encephalartos Caffra*, in fruit).

that a description of it need not now be attempted. For exhibition purposes, grouping in conservatories, &c., it has few rivals, while the graceful character assumed by quite young plants make it of great value as a decorative plant. *C. circinalis*, which is found in South India, &c., is a tall-growing, large-fronded species, easily distinguished from the foregoing by its broader, longer pinnae and larger size of frond and head. It grows to a height of from 12 ft. to 15 ft., the trunk being about 1 ft. in diameter, and crowned with a head of fronds measuring at least 12 ft. across. Young plants grow very rapidly, and bear their leaves in a more erect position than they are on mature plants. *C. pectinata* is a beautiful species with the habit and appearance of *C. circinalis*, but differing from it in the length of the pinnae, which in this species are over 1 ft. long, and gracefully curved like a sickle. There are several fine specimens of it at Kew. It is a native of British India, and somewhat rare. *C. siamensis* has already been commented upon recently in THE GARDEN. It produces a graceful head of rather short, deep green leaves, the pinnae of which are short and rather closely placed on the stems. The stem is Onion-shaped and about 10 ft. high. It

Frederici Guilielmi is a very striking member of the Order, here and there to be seen in gardens. It has a conical stem, which in large specimens is 3 ft. high by 2 ft. in diameter, and bearing a head of rather rigid leaves, clothed with a whitish tomentum. The pinnae are linear-oblong with a few teeth at the apex. E. Ghillini is a short-stemmed species with almost erect-growing leaves, the pinnae of which are almost terete, and covered with a glaucous down. E. brachyphyllus resembles in habit the last-mentioned kind, but differs in having green leaves of the shape of those of E. Frederici Guilielmi. These two last noticed kinds thrive better in a cool greenhouse than elsewhere. Other kinds are E. horridus, a species with stiff, tortuous leaflets and very spiny; E. Lehmanni, which is not unlike E. horridus, but has glaucous leaves and is less ferocious looking; E. Altensteini, E. villosus, E. lanuginosus, E. longifolius, and E. Kaffir. These are all noble plants, well adapted for conservatory or stove decoration, whilst the little trouble one experiences in their cultivation is a point in favour of their becoming more popular than hitherto. The centres or hearts are cut out of some species by the natives, and are cooked and used as food.

Zamia.—These plants are confined to America and the West Indies. This genus presents a greater diversity of form than any other of the Order, and comprises many very ornamental kinds. *Z. Walp.* (*gyr.*, *Z. amplifolia*), is a beautiful species, but, unfortunately, it does not appear to have made its appearance elsewhere than in Mr. W. Bull's collection. Mr. Bull exhibited a plant about four years ago, which was named and described as *Z. amplifolia*. Since that time, however, it has not been seen, and we can only hope that presently Mr. Bull will be able to advertise a large stock of this very desirable plant. It is a small-growing kind, with a terete curving leaf-stalk, bearing at its ends four pinnae, each of which is about 1 ft. long, 3 in. or 4 in. broad at the base, gradually narrowing to a long point. The young leaves are of a purplish hue. *Z. obliqua*, a straight, thin-stemmed species, from 2 ft. to 4 ft. high, with light, shining green leaves, the leaflets obovate, or ovate in outline, and thinly placed on the stipules. A very distinct kind, *Z. muricata*, *Z. Loddigesii*, *Z. Sieboldii*, and *Z. prasina* are short, branching-stemmed kinds, with leaves from 1 ft. to 3 ft. long, and strap-shaped, toothletted leaflets. There is very little difference between them, at least in leaf characters. *Z. furcata* and *Z. integrifolia* are stiff-growing kinds, with leaflets more or less strap-shaped, and notched at apex, and sometimes covered with a ferruginous down. *Z. picta* is a very tall-leaved kind, with pinnae marked with whitish blotches. A very pretty little species with Turnip-like stem is *Z. pumila*, whose small, dark green, gracefully arching fronds are very attractive. There are many other species not included in this list, but which, either from their lacking any special qualities to recommend them, or being known only in herbaria, need not be included here.

Anlacophyllum Lindenii is a noble Cycad. Few finer exhibition foliage plants are known, the bright green of its prominently-veined leaflets, its bold habit and vigorous nature being such as should commend the plant to all cultivators.

Macrozamia is another genus which is confined to Australia. The beautiful *M. plumosa*, whose leaves are as graceful as ostrich feathers, has only to be seen to be admired, while *M. Fraseri*, *M. spiralis*, and *M. Mackenzii* are equally beautiful plants. *M. Denisonii* is a thick stemmed, flat-leaved kind, whose leaflets are arranged on the upper side of the stipules, so as to completely hide it from view. It is one of the most graceful and engaging plants in the Order. *M. Macleanii* is very near, if not the same as this last kind. *M. Perowskiana* and *M. Hopei* are long-leaved, graceful kinds, with round stipules and long, strap-shaped decurrent pinnae.

Dioon edule, a native of Mexico, *Stangeria paradoxa* (Natal), and *Bowenia spectabilis* are the remaining plants to be noticed, the first of which is a flat, stiff-leaved Cycad, the leaflets of which are almost as rigid as a knife-blade. The second plant is a very remarkable one, the veining of the leaves resembling exactly some Ferns—in fact, the plant was for some time cultivated as a Fern, and was named *Lomaria*. *Bowenia* is a genus of which but one species is known, but that is a very elegant one. It is the only Cycad with bipinnate leaves, and thus, together with its fleshy root-stock, from which the leaves spring, render it of considerable botanical interest. There is a distinct variety with serrated leaflets, which has recently been introduced.

In conclusion, I must point out that on paper it is impossible to convey anything like a correct idea of the noble and graceful character of the Cycad family. Such plants must be seen to be admired, and it is therefore satisfactory to be able to point to a collection of which we should feel proud, namely, that at Kew. B.

Hydrangeas for conservatories.—I find much time and trouble saved by taking my cuttings for conservatory plants in September,

selecting short, green, half-ripened tips from outdoor plants. I put them in 2-in. pots under glasses in heat, and allow none to lose their leaves. After they are rooted and well-pot-bound, I put them in 4-in. or 5-in. pots, keeping them in an intermediate temperature during the winter. As soon as they show bloom, I remove them to a cool greenhouse, where I have had since March beautiful trusses 18 in. in diameter on dwarf plants, with good, green leaves down to the rim of the pots.—G. WILLIAMS, *Peasmarsh Place, Sussex.*

Fernelia buxifolia.—Can anyone give me any information respecting this? What is it? "Faxon" places it in the order Cinchonaceae, and gives as a synonym *Coccyocypselum buxifolium*. Does it resemble the *Vacciniums*? and if so, what are the distinctions? Is it hardy? How is it best cultivated? Any information, especially of a descriptive character, or by a person who grows it will be gladly received. I believe this is its flowering period in this climate, judging from the little I know of it.—J. WOOD, *Kirkstall.*

Greenhouse Rhododendrons.—I send you a truss of a lovely Sikkim *Rhododendron* now flowering here for the first time. If you can give me its name I shall be obliged. It is growing in a 6-in. pot, and is producing four trusses of delicately tinted blooms. Doubtless with more generous treatment and a shift into a larger-sized pot the size and substance of the flowers would become much improved. *Rhododendron Sesterianum* has been magnificent, and R. Gibsoni is one of the best of gardeners' friends where cut flowers are much wanted. In flat dishes they look well. The straggling growth of these *Rhododendrons* is doubtless against their extended cultivation, for unless possessed of good lofty houses they soon become too large for ordinary greenhouses, but nevertheless they are well worth attention.—D. ROBERTS, *Prestwold.* [The species sent was *R. calophyllum*.]

Useful basket Ferns.—*Asplenium flaccidum* may not, probably, be the best Fern for a basket, but it is certainly a very good one. It grows freely, and its graceful, arching fronds render it peculiarly attractive. It is the best Fern for brackets with which I am acquainted. If anyone has a dark back wall in a fernery or conservatory where few other plants will grow, they cannot do better than put up a few brackets, secure some plants of this Fern in pots, and put them on them. When we required something here a few years ago to hide an unsightly wall we adopted this plan, using 8-in. pots for the plants, which produced graceful, drooping fronds more than 3 ft. long in the space of three years. It may be useful to remark that while this Fern will thrive in a moderately warm temperature, it will do equally well in a house where fire heat is only applied to keep out frost. I find that it grows well in a soil composed of peat and loam in equal parts, mixed with a fair proportion of sand. When grown on brackets, as soon as the soil gets full of roots the pots should stand in saucers. If saucers are not used the plants will not thrive so well, unless extra attention is paid to the watering. If the baskets or brackets are numerous and variety is wanted, *Asplenium bulbiferum* makes a suitable change. In abut and growth it is very similar to *flaccidum*, and yet quite distinct.—J. C. C.

SHORT NOTES—INDOOR.

Seedling Pelargoniums (*G. C. J.*).—Valueless from a florist's point of view; but being showy and free flowering, it would doubtless make a good market plant. The scarlet had dropped to pieces, but it seems to be bright and good in colour.

Potting material (*W.*).—What you send is dead vegetable matter, not yet arrived at a condition to warrant its being described as peat. Such material is of no use for pot plants except to place over the drainage crocks. It will hold water like a sponge; consequently, if used in a greater quantity than is necessary for the purpose just named, it will rot the roots.—T. B.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

The dark leaves and thickly clustered bloom of Holly are desirable additions to a large bowl of Tea Roses; the stiffness of the Holly twigs makes it easier to arrange the Roses: once firmly placed they do not move, and keep their freshness much longer than when they are allowed to fall together without some stiff support. Nothing is much sweeter in a room than large bunches of the old border white Pink; we pick a good quantity of uneven length, with plenty of buds and tufts of leaves, and arrange it in a pale blue and white china bowl with a few pink China Roses. The Pinks will last for a week, but the Roses should be renewed every two days, as their colour quickly deteriorates. Blue Cornflowers, fine and large, from autumn-sown plants, make a pretty bouquet with Fair Maids of France (*Ranunculus acionifolius*). Gaultheria Shallon, with its old and new foliage, delicately tinted stalks, and waxy flowers, is beautiful by itself in polished silver; its sprays of handsome leaves are valuable for cutting at all times of the year. The dinner table is decorated with pots of *Adiantum* in silver and small bouquets of pink Brier Roses with Venus's Navelwort (*Omphalodes linifolia*), one of the loveliest of annuals, that should be largely grown, sown in autumn for early summer use.

FLORAL DECORATIONS.

J. HUDSON, GUNNERSBURY HOUSE.

Having occasion recently to arrange a centre-piece for a dinner table of considerable size, I selected a glass vase with a single cornucopia rising from its base. Its height was about 24 in., and the bottom measured about 12 in. in diameter. About the latter I placed a fringe of Fern fronds of such sorts as *Adiantum formosum*, *Nephrodium molle*, and a few only of the golden and silver *Gymnogrammas* with the fronds inverted, Moss being used to cover the sand. Around the stem I placed three or four growths each of *Cyperus alternifolius* and *Juncus* of various heights; interspersed with these were ten or more fine spikes of the Turk's-head Grass (*Lagurus ovatus*), all standing as if growing. Several fronds of Maiden-hair Fern were arranged as an undergrowth. After this the flowers were added. These consisted of three blooms from their spikes of the German Iris, with about a dozen flowers of *Gloxinias* with all the length of stem I could secure; dotted amongst these were five or six blooms of the yellow Paris Daisy (*Etoile d'Or*) and a few trusses of a pale *Bouvardia*. This completed the arrangement of the base, which rested on the table-cloth. In the cornucopia I placed one slender spike of a small form of *Delpinium* (blue) and three spikes of *Astilbe* (*Spiraea*) japonica; dotted here and there were pink and white *Rhodanthe*, and overhanging the margin of the trumpet, spikes of *Begonia odorata* resting on a fringe of *Pteris serrulata*. This completed the arrangement. It will be observed that single flowers only were used, and a very pleasing effect was obtained by means of them; in fact, the addition of any double flowers of any sort would have marred the effect of the whole. Two small plants of *Cocos Weddelliana* were placed in two soup plates without being turned out of their pots; sand was placed around each and covered with Fern foliage and variegated *Begonia* leaves. A few blooms of *Roses* were then interspersed amongst these, no other flowers being used. These arrangements were placed on either side of the centre, and on each side of these was a well-bloomed plant of *Gloxinia* in a vase. The *Gloxinias* were, if anything, too heavy; a smaller plant would have been better. The same day I tried an experiment with some blossoms of *Passiflora kermesina*, having several open. I cut them early in the morning and allowed them to float in a basin of water till the evening, when I placed them in a small glass for the drawing-room. In

this manner they kept perfectly fresh and open; had I left them on the plant, they would have closed before I wanted to use them.

ROSE GARDEN.

W. H. FRETTINGHAM, BEESTON.

NEVER have I been so much troubled with insect pests on Roses as this year; every bush here is completely covered with green-fly. In order to destroy them take 4 oz. of Quassia chips, boil them well, and while cooling add half the quantity of soft soap to one gallon of water. Dip the shoots where possible in the solution, as that has a better effect than syringing. Grubs, too, are plentiful; in destroying these unroll the curled leaves and take out the destroyer, and do not, as some suggest, pick off the foliage. Those who prefer perfect blooms to a multitude of small ones must disbud freely, leaving the centre bud and taking off the smaller ones. In case the premier bud gets eaten or otherwise damaged, it will be necessary to leave the largest and most healthy side bud. Suckers, both on the Brier and Manetti, must be kept down; they always come off freshest after a shower or early in the morning. In damp, cloudy weather liquid manure should be applied. Where the ground has been made hard through heavy rains, hoeing is beneficial to the growth of the plants.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Grevillea robusta.—In a young state this is an invaluable decorative plant for the summer flower garden. The foliage is a rich dark green, and beautifully cut and Fern-like; the habit of growth, too, is graceful in the extreme. It is really a greenhouse shrub, being a native of New Holland, but it stands 8° or 10° of frost without injury, a merit of no small moment to all who have to study how best to lengthen out the summer bedding season. The most effective way we ever used it was what may be described as a miniature avenue plant. It formed a centre in oblong blocks and parallel lines of *Mesembryanthemum cordifolium variegatum*, blocks of *Herniaria glabra* alternating, the central plant of which was the White Fish-bone Thistle. This *Grevillea* is equally telling when used along with *Pelargoniums*, or indeed with any of the ordinary kinds of bedding plants, effectively destroying, or rather obviating, when planted at regular intervals over the beds, that undesirable flatness and formality so common in most gardens. It is best raised from seeds annually sown in January, the produce being planted out in May. The plants make a good show by midsummer, and if lifted in October before the frost is too severe, they will do good duty in the conservatory in winter.

Rhododendrons.—All seed vessels should be picked off the earlier varieties, straggling shoots pruned in, and grafted kinds, examined with the view of removing stock shoots, and root suckers. Any plants moved in the autumn and winter should still be kept mulched, a condition that will obviate the necessity of watering. This remark also applies to all other kinds of shrubs that have been lately transplanted, though no doubt some would be the better for having a good soaking of water as well as the mulching; any that look critical, and must be saved at any cost, should at sunset be syringed overhead. Lilacs, Spiræas, Weigelas, Broom, Gorse, and others doing flowering should, if needed, either through restricted space or to ensure the keeping of the plants equable as regards growth, be pruned into the required form. Keep the clumps free from weeds by means of surface-hoeings as often as an opportunity offers.

Roses still need a large amount of attention as to cleansing them from aphids and maggots; copious waterings in dry weather, and surface mulchings, which keep the plants in vigorous health, will do much to prevent the attacks of parasites. Climbing Roses should be kept well

secured to their supports, and the old flowers should be regularly cut off, an operation which will assist in the production of a second bloom.

Climbers.—Keep Clematises and other climbers closely trained in; these also need plenty of water at both root and top, more particularly those plants that are growing close to buildings and under over-hanging projections where the rainfall cannot reach them. Supports should be placed to Sweet Peas, Scarlet Runners, Canary Creepers, Convolvuluses, and every other kind of annual climber before there is any risk of the growth getting matted. Such plants are alike useful for festooning, or drooping over ledges of rock or root-work, but even in these positions it is necessary to occasionally go over them to single out and if needs be to cut away portions of their growth.

General work.—This will consist in finishing bedding out and in the removal of every trace of untidiness that for a time is unavoidable whilst such work is in progress. Trim or peg into form every kind of plant that will look the better for such manipulation. Pinch the flowers of *Calceolarias*, *Violas*, *Verbenas*, *Petunias*, and *Pelargoniums* to ensure their earlier and more vigorous establishment in the soil. The flowers of *Lobelias* and carpeting plants we prefer to remove with a pair of sheep shears, which at the same time take off any uneven portions of the plant, the growth afterwards being more dense and tufty. In the early stages of growth, *Alternantheras* and *Coleus* quickly resent artificial watering by refusing to grow at all; preference should therefore be given to mulching the beds with Cocoa fibre refuse; this renders all waterings, except the first to settle the plants in the soil, wholly unnecessary. Mowing of lawns and weeding of walks are now at the maximum point, and with the stinted labour, now common to most gardens, it is difficult to keep abreast with such work; where this cannot be done without neglecting other and more important departments, it would be well to consider whether or not it would not be wise to reduce the amount of ground that ought to be highly kept to such limits as the labour allowed would be able to maintain in perfect order.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Kalosanthes.—Young stock of these should be propagated yearly. They strike readily; in fact, cuttings will root if merely laid on the surface of the soil in a greenhouse or pit. The best way is to put single cuttings into small pots filled with ordinary loam and sand, selecting from established plants moderately strong shoots that have not set any flowers. These will root in a fortnight if kept a little, but not too moist, as succulent plants of this kind if too wet in the cutting stage are liable to rot. In preparing the cuttings all that is necessary is to make a clean cut at the base, and to strip off the leaves of the lower portion that is inserted in the soil. When well established in small pots move them into others about 4 in. in diameter, which will be large enough for this season. They will make good flowering plants in two years. During summer they will succeed in an ordinary greenhouse or pit, giving them enough water to keep the soil in a healthy condition. *Kalosanthes* are amongst the easiest of all plants to manage, but it frequently happens that they do not flower freely; where this occurs it is the fault of the treatment. All that is requisite is to get the shoots properly ripened the summer previous to that in which they are intended to bloom. This can only be done with certainty by setting them out-of-doors exposed to full sunshine for a considerable length of time, say from the beginning of July to the middle of September. To have the flowers highly coloured the plants require to be placed in the open air just before they begin to open. The north side of a wall where they will get plenty of light, but not exposed to the mid-day sun, answers well.

Roses.—Where indoor Roses are planted out they will not require nearly so much watering as when in pots, but care must be taken that the beds they occupy are not allowed to become too dry, or the foliage will be sure to be attacked by mildew, and the crop of flowers will be much reduced both in size and quantity. It is the more necessary to see to this as the daily use of the syringe keeps the surface soil moist, whilst that underneath may be dry. When the plants are strong and making vigorous growth, they require to be well supplied with manure water. Tea varieties, which are much the most suitable for indoor cultivation, are all but continuously in a growing state the whole year round, and to maintain their vigour they must have the soil regularly assisted in this way, or else have the surface dressed with some light manure, that will be washed down in the operation of watering. The same applies to pot Roses that have been started in succession to follow the winter bloomers. Where a house is devoted to Roses it is desirable to keep the plants on in a flowering condition, even after a supply can be had out-of-doors, for in many localities the Tea varieties rarely produce flowers in the open air that will bear comparison with those grown under glass. Plants that have given two or three crops of flowers during the winter and spring, will now show signs of requiring a rest, however strong they may have been, but on no account turn them out in the open air until they have been somewhat hardened off by discouraging growth through cooler treatment. Even in the case of such plants as are being thus subjected to a resting process, whenever mildew appears it should at once be checked by the application of sulphur.

Herbaceous Calceolarias.—Where a good strain of these exists and they are well grown they will have been very effective. Any that show marks of superiority in habit of plant or form and marking of the flowers should be propagated by themselves and kept for purposes of propagation, as well as for seed saving. By selecting individual plants in this way the strain may be continually improved, but in all cases remember that a vigorous, healthy constitution is of the first importance, so that the plants are able to make plenty of stout foliage, for without this the flowers, however perfect, are of no value for general decorative use.

Celosia pyramidalis and Balsams.—Another sowing should at once be made of these, the produce of which will bloom later on after the earliest are over. Where there is a good strain of this elegant feathery *Celosia*, comprising the brightest shades in yellow and pink to deep crimson, and the plants are well managed, there is nothing more beautiful. The small side branches of the flower-spikes are most effective when mixed with any combination of cut flowers. The length of time during which they will last either in a cut state or on the plant is not the least valuable property which they possess, but to prevent their getting tall and leggy, they should from the time when the seedlings first vegetate be subjected to plenty of light and receive as much air as can be admitted without the atmosphere of the house or pit being too much dried up. The same applies to Balsams. Where these are allowed sufficient head room with timely shifts into pots big enough to admit of due extension of the roots they have a very different appearance from the starvelings too often met with. Both the above plants enjoy a liberal application of manure water after they have begun to grow away.

Oranges.—Where these exist in either small or large examples, and the greatest quantity of flowers which they can be made to produce are wanted, they should not be allowed to bear fruit, as when the plants are in good condition and kept a little warmer than in an ordinary greenhouse, they flower oftener than when their energies are overtaxed by fruiting. Whilst in full growth the plants should have frequent applications of manure water, in which soot ought to be an ingredient, as it is distasteful to worms,

usually so troublesome in the soil. Where Oranges are grown in more or less warmth one of the principal things requiring attention is keeping down scale and mealy bug. Where these pests are allowed to get numerous before means are taken for their destruction, the foliage always suffers in a way that makes them unsightly, and the free production of flowers is also impaired.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Peaches.—Early houses from which the gathering of ripe fruit was commenced in May require very careful management to keep the trees in a vigorous state of health for a number of years, and as the replanting of a house is attended with considerable expense, too much care cannot be bestowed on large, healthy trees from the time the last Peach is plucked until the leaves fall early in autumn. As lean-to houses are best adapted for early forcing, movable lights are preferable to fixed roots, particularly where gardens stand high and airy, and the borders, as all early Peach borders should be, are confined to the interior of the house. When all the fruit is gathered from the earliest trees, cut away all superfluous wood which has been retained for the benefit of the crop of the current year; remove breast-wood, and tie in the shoots left, allowing plenty of room for the full development of the foliage and the free admission of light and air. Syringe well to clear away insects which may have gained a foothold, and water with tepid water until every part of the border is properly moistened. Tie down the shoots in succession houses, and shorten back to increase the size of the fruit where the wood will be no longer wanted after it is gathered. Gross shoots from behind, as well as in advance of the fruit, which will be expected to produce the next crop, may also be pinched and the final thinning of the fruit completed, as healthy trees are often injured by being overloaded through the trying ordeal of stoning. Give plenty of water of a stimulating nature to inside borders. Syringe early and well with clear, soft water. Ventilate freely through the first part of the day, and assist the fruit through the last swelling by closing in good time with plenty of sun heat. Trees in late houses require more decided disbudbing than is sometimes bestowed upon them, as it often happens that the fruit in these structures is kept back until many of the wall Peaches are over, and the wood of such kinds as Barrington and Walburton Late Admirable does not get properly ripened. Growers of late Peaches who have not planted Sea Eagle will do well to give it a trial. With me it yields very fine fruit, which keeps a long time after it is gathered, and, unlike the Barrington, it always completes its last swelling and finishes properly.

Wall fruits.—The Morello Cherry in this locality is perhaps the most profitable of all wall fruit trees. But the wall culture of fruits of any kind for market is by no means well done, the expense and the uncertainty of tenure rendering it impossible for the tenant to properly carry it out. I am, however, convinced that walls would well repay the expenditure bestowed on them; not only could choicer kinds of Pears, Cherries, Peaches, Plums, &c., be produced on them, but they would also shelter other crops. It is not every year that whole districts are blighted by gales as this year, but we never escape some damage in that way; and in addition to the greater certainty of crops that shelter walls would give, there is a still greater one of getting the produce from their immediate vicinity into market a few days before that in from open quarters, and every one in the market trade knows that a few days even frequently make all the difference between profit and loss in the case of any crop. Walls of the massive character one finds in private gardens would not be needed; wooden framework covered with stout felt, as one finds at Barham Court and in other experimental fruit gardens, would answer, and would not cost much, a great point in fruit culture for market.

Orchard house.—Remove the early kinds of Peaches to a cool part of the house or a separate house altogether as they are cleared of ripe fruit. Thin out the wood from which the fruit has just been gathered, stop exuberant growths, and syringe well to free the foliage from spider. Vigorous young trees, which require a shift into larger pots, may either be potted as they are cleared of fruit, or they may be kept well supplied with water of a stimulating nature until the whole of the first batch is ready for overhauling. Keep them under glass and maintain a moist, growing atmosphere until the roots have taken to the new compost, then plunge in ashes in the open air; much to economise watering, and syringe overhead on fine evenings. Pay particular attention to the watering and syringing of all kinds of fruit trees in mid-season and late houses, and make sure of the water reaching the roots of those planted in the borders by mulching or forcing a basin round the stems. The best time to ascertain whether a tree wants water is just before the afternoon syringing, when a glance at the pot or the foliage will tell whether the roots are dry. Make the final thinning and shorten back the shoots where a sufficient number of promising fruits are swelling near home and the shape of the trees can be improved thereby. Let the trees be well syringed soon after six on fine mornings, and not later than four in the afternoon. Open the ventilators when the temperature begins to rise, and let the time when the fruit is wanted be the guide in closing for the day. Late or unheated houses, which now in many places give a more certain supply of fruit than can be obtained from open walls, may from this time forward have the ventilators left constantly open until the fruit is ripe. An erroneous opinion prevails with some that house Peaches ripen earlier than they do on walls, but if judiciously selected kinds are potted, or, better still, planted out, and a constant circulation of air is maintained, with due attention to atmospheric moisture, fruit equally late and of finer quality may be secured.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

EARLY Potatoes should now be earthed up, and if this operation can be done after a night's rain, they will be made almost independent of the weather, the soil added to the rows, and the foliage together making a capital mulch. Early Broccoli raised under glass should now be pricked out. I use 2 in. of Mushroom manure and a thin layer of soil, placing them in the alleys left for fruit trees by the side of the wall—generally a west one. The bottom under such circumstances is hard, and the Broccoli does no harm for the short time it requires the ground; in fact, in dry seasons the mulch actually benefits the wall trees. The Mushroom house should now be thoroughly cleaned out, removing all the old beds; sweep down the walls, and give them a good syringing, and when wet sprinkle them and the path and roof with fresh lime, opening all ventilators, doors and windows, so that a sweet house may be the result. Mushroom beds more than any other enjoy a pure atmosphere. Outside beds are bearing here very well. Keep them damp by watering the covering of the bed, letting the water soak through the straw slowly, but surely. Tomatoes should now be planted out; bear in mind they want good sound loam, but not much manure. It is a question whether we do not, as a rule, use too much manure. If Tomatoes require any assistance after the fruit is set, they will tell you by their looks; and if so, give them a couple of good waterings, either with manure water or guano; 1 lb. of the latter to 36 gallons of water is sufficient. Keep a good supply of Lettuces tied up and plenty of small salads sown.

Prince Bismarck and forest planting.

—We hear with pleasure that Prince Bismarck is a great friend to forestry, and that he has of late years been encouraging, and effectively encouraging, a series of measures of

much importance to forestry throughout the whole of Germany. A planter himself on a large scale, he is helping the State to make its forest property a school of observation and experiment of the highest use, each forest inspector being enabled to assist in a series of observations and experiments, one important aim of which will be a test of the hardness and utility of the various North American trees introduced for many years past.

ON EXHIBITING ALPINE AND HERBACEOUS PLANTS.

FEW will question that the revived taste for herbaceous plants is likely to be fostered by their exhibition at our great leading shows, and that, considering the space they occupy, those amateurs are much to be commended who take the trouble of sending collections of them to be seen by the public generally, and especially by lovers and growers of these very varied and beautiful plants, but it is manifest that some rules, some standard of excellence must be arrived at if this practice is to continue, or I venture to say exhibitors will speedily withdraw and be contented to leave to others the ungracious task. In looking at a collection exhibited for competition, an amateur naturally looks for what is new or beautiful, and not to masses without beauty or novelty to recommend them. I have been led into this train of thought by the exhibits at the late Whitnustide show at Manchester. There prizes were offered for collections of alpine and herbaceous plants, and anyone who saw them and could compare them with what we see at our metropolitan shows must have been impressed by the vast superiority of the northern show. Nothing surprises me more than the very poor collections that are shown in London, and yet there are good growers in the neighbourhood of our great city who could surely send choicer things than they are in the habit of doing; but I think many must have been surprised to see the position awarded to these collections at Manchester, for, unless on some unsound principle of judging, I cannot see how Messrs. Dickson & Son and Mr. Brockbank could have been placed second to the collections which in the nurserymen's and amateurs' classes secured the first honours. It is ever an ungracious thing to find fault with any adjudication, and I do not for one moment question the competency or the honesty of those men (who they were I know not) who acted as judges on this occasion. I can only surmise that they think differently from what most of our herbaceous plant growers think, and were more impressed by size than by rarity or beauty. And I am not at all surprised to find that strong remonstrances have been published in the Manchester papers on the subject, and that such authorities as Mr. Wolley Dod, Mr. Harvey, of Aigburth, and Mr. Leo. Grindon should have taken this view. I will content myself with simply dealing with the amateurs' class; the two competitors were Mr. Joseph Broome, of Didsbury, a most genial and ardent horticulturist, and your correspondent, Mr. Brockbank, of Brookhurst, Didsbury; the latter has, at considerable expense, collected one of the most interesting collections in the country, and has been very successful in their culture. It was open to him, had he so liked, to have sent large masses of common plants, but he had a better idea of the situation; he selected from his collection of 2000 plants those which he considered the most valuable and beautiful, and put them up. They were as follows, viz.: *Aquilegia glandulosa*, *A. coerulescens*, and *A. californica* hybrida, *Allium pedemontanum*, with pink flowers; *Antirrhinum Lilium*, a fine clump consisting of a dozen flower-stems, *Androsace coronopifolia*, *Erinus alpinus*, *E. alpinus albus*, and *E. hispanicus*, these were interesting as showing the three varieties; *Cistus algeriensis*, a very beautiful plant which I had never before seen, the flowers golden yellow with deep crimson centres; *Campanula Wanneri*, *C. thyrsoidea*, a very rare and strange plant; *Corydalis capnoides alba*, *Delphinium nudicaule*, *Globularia tricho-*

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

AN OUT-OF-THE-WAY GARDEN.

GARDENING is a pleasant amusement to quiet country life, and flowers are very good company to those who are fond of them; but flowers may be excused for liking to get admiration beyond their own domestic circle. Here they are rarely visited by anyone who knows a Larkspur from a Columbine. This garden, like Horace's volume of poems, more vain than its master, *paucis ostendi gemit*—Malpas, as may be inferred from its name, is not on a good road to anywhere, and if it were not lawful sometimes to sing the praises of one's flowers in THE GARDEN, they would live and die unknown. At present the chief business here is trying up. Some denounce trying up as giving a stiff, artificial look. And so it does; but it is all very well for those who have sheltered gardens in the calm and sunny south to object to it, but after six hours' heavy rain from the Welsh hills, succeeded by a westerly gale, the devastation in an untied garden would teach prudence for the future. I was warned to-day of the consequence of not trying by seeing a great plant of Papaver umbrosum, which had been neglected, snapped off at the base, and rolling along over the Grass.

Poppies are now the most conspicuous flowers in the garden. Those who grow *P. umbrosum* only as an annual, or who transplant it in spring, cannot know what it is when it has the full benefit of biennial growth. It ought to be sown as soon as the seed is ripe, and the young plants never crowded, and encouraged to grow on by watering and rich soil, and be established in their flowering place by the end of October. A single plant so treated will be far more showy than a bunch of plants moved in spring, and have far larger flowers. *P. orientale* and *P. bracteatum*, two grand plants for the back row of a mixed border, though their flowering season is short, have many intermediate forms both in habit and colour; all are best raised from seed, as they transplant badly after they have flowered. Another relation of the Poppy is *Meconopsis nepalensis*, easy to raise from seed, and prettier when forming its flower-buds than when in flower, as it is too tall and too irregular in form to be pleasing. *M. Wallichii* is more difficult to rear, and is now coming into flower here for the first time. *M. cambrica* is a most ornamental and unobtrusive weed, and fringes the base of an old wall at the side of a walk or yard with good effect.

Of white flowers the double English Rocket now makes the greatest show. In this rich, moist soil it is not contented with ordinary dimensions, but grows 3 ft. high with many lateral branches. The plants are cut down after flowering, and the side shoots then produced are taken off in July, make large plants for next year, and are finer than older plants. The *pièce de résistance* of the garden is at present the Pyrethrum, double and single, the latter always preferred here. Besides those in the mixed beds, they have one or two beds to themselves, for the ladies to cut at for table decoration, and no flower looks better on a white cloth or lights up better than a single crimson Pyrethrum. By a selection through two or three generations I raise as good seedlings as I can buy, but neither from my own seed nor from any nurseryman can I get a pure white single Pyrethrum roseum. Many are pure white

in catalogues, but I sent to an eminent grower for his two purest and whitest, which have names denoting unsurpassed whiteness, though both are tinged with pink.

If I were asked what are the prettiest flowers now out in my mixed borders, I certainly should say the hybrid Columbines, though I know the editor of THE GARDEN would not agree with me; and I will not deny that for individual flowers *A. glandulosa* and *A. cœrulea* may hold the first place, but the habit of both these would be improved by being more robust, and by judicious crossing the plant gains in vigour more than the flower loses in colour and form. Some hybrids of *chrysanthia* and *cœrulea* and *canadensis* are amongst the most beautiful and graceful of hardy flowers. Hybrids of *A. vulgaris* and *A. glandulosa* have some very good flowers, but the seedlings require selection, and cannot always be reproduced. For dark purple, *Campanula glomerata* is now the handsomest flower. Those who only know it as a wild flower would hardly recognise it in its garden forms of many names, growing 3 ft. high, or more, with large, heavy clusters of flowers hardly able to hold up their own weight. The white and lavender-coloured varieties are less robust, but good in their way. Several kinds of perennial double *Ranunculus* are still good. A grand plant of Fair Maids of France, with a well filled head measuring 5 ft. by 3 ft. through, is nearly over. The double *R. speciosus*, which has the largest flowers, is past its best. The natives, *R. acris* and *R. repens*, are still in their prime, and of these the latter, though less seldom seen, is by far the best. It is very easily kept from straggling, and I have several compact plants 1 yd. across, and not more than 1 ft. high, covered with large, double yellow flowers, without any green centre, of far more substance than those of *R. acris*. If yellow composites were not too common, *Bahia lanata* would be a very good plant, dwarf, compact, graceful in growth, and covered with a profusion of golden flowers. I raised it from seed in the spring of last year, but it is said not to survive very severe winters. The St. Bruno's Lily (*Anthericum Liliastrium*) does not increase as fast as gardeners would like. It is much grown in cottage gardens about Manchester, and, having got a good stock from that neighbourhood, I have tried it in all soils and positions, and find it does best in a moist open soil with shelter from hot sun. The major variety certainly deserves its rank. Many flowers must remain unnoticed for want of room to speak of them; but for clear light pink, *Lychnis Viscaria*, the common single form, is now excellent. Its elegant spikes, nearly 3 ft. high, are amongst the most attractive flowers in the garden. Less conspicuous, but even more floriferous and more durable, is the Daisy-like *Erigeron philadelphicus*, a plant with many names. The seedlings which come up round the plant are most useful stop-gaps, to which recourse may be had with good effect at any period of their growth, as they transplant well, owing to their compact and fibrous roots.

It has been said to be a merit when herbaceous borders are so full that the soil cannot be seen. Mine are certainly not deficient at present in that merit, if merit it be, but I would gladly see a little soil, for then there would be some chance of finding room for the forests of single Dahlias and annual Asters and such like plants, which still beset my head-quarters; but at present there seems to be nothing but to move back the garden fence again and take in another half-acre from the field, which is only too easy.

— usque proximis
Revellis agri terminos, et ultra
Limites salis.

This is all very well, but as soon as an amateur's garden becomes too large for the owner to know all its contents, the chief charm of gardening is gone. C. WOLLEY DOD.

Edge Hall, Malpas.

A CURIOUS FACT ABOUT ALLIUM FLOWERS.

MR. WOLLEY DOD interested me very much in his description of the increased size of the flowers of *Narcissi* when cut and placed indoors. I have now an observation for him. Some eleven years ago I placed by chance certain flowers of *Allium ciliatum* on a chimney-piece, and was surprised to notice them a week afterwards flowering very prettily lying on the dry slab. Remembering this the other day when two heads of the handsome rose *Allium Ostrowskianum* came here from Colchester, I placed one in a small jar of water and the other beside it on the shelf. The result is that the flowers left completely out of the water flowered much longer than those in the water! Four days after all the pips on the head in the water were closed and dead; those lying on the bench beside them were quietly opening buds and blossoms all as fresh as if on the plant. V.

MESSRS. FROEBEL ON ALPINE PLANTS.

THE article sent by Messrs. Froebel, published in this week's GARDEN, is an important one for all who care about the subject on which it treats. As our readers may remember, we have, perhaps, troubled them more with our own opinion on this subject than on any other. The ordinary ways that have been tried to grow our alpine plants for many years in our gardens were needlessly complicated, and defeated their own ends. We pointed out in every way open to us, both in books and journals, that what alpine plants really wanted was protection from larger creatures, either human or vegetable. As a matter of fact, they were starved, and shaded, and dried to death in the rock garden, or stewed with the same result in frames. Our own convictions in the matter have little to do with what is called theory; they are simply observations of the plants in gardens and in a wild state. For although it was generally laid down in all books, botanical and horticultural, that the choicest alpine plants could not be cultivated, yet any one who saw many gardens in various parts of the country, and paid any attention to the subject, could see evidence that the contrary was the fact; also that a bold experiment on different lines from those usually laid down would give a very different result. Such is the variety in the gardens of the United Kingdom, public, private, and commercial, and such the number of plants tried in them, that anyone who travelled a little had no difficulty in getting materials from which to form a conclusion. We remember the late Mr. Stark, of Edinburgh, had a good many interesting alpine plants on the level ground, in ordinary sandy loam. So had the late Mr. Tate, who managed for Messrs. Dicksons, some choice plants that we have not seen since. When we first went to Mr. Bateman's place, in Staffordshire, we were very much surprised to see the little *Soldanella* (a true child of the mountains), spread into a vigorous mass of tiny leaves on the level sandy border there. Once we found ourselves with Alfred Parsons in the midst of a plot of Saxifrages, at Great Tew, swarming with bloom, and the ground they grew in probably accommodated Peas or Celery some short time previously. It is a good many years now since Mr. John Bain, in the College Gardens at

Dublin, used to grow his choicest alpine flowers in the soil in lines in level borders. The late Mr. McNab, too, had many a gem in those rich nursery beds of his. Look at that old bed of Saxifrages in Regent's Park, the recipient of a rain of soot, and existing in spite of every kind of neglect for these thirty years past; and yet the plants always grow on steadily, if not very fresh in growth or flower. At Kew in the old days anything really good was in the Pink beds, or beds of other plants of dwarf growth planted in the full sun. Now, since people have gradually imbibed the right idea, we have plenty of examples showing that, if we give these plants suitable soil, and wholly protect them from coarse neighbours, so that they may be fully exposed to sun and air, they may be grown as easily as any others, so far as the great majority are concerned.

FRUIT GARDEN.

FRUIT PROSPECTS.

THE brilliant hopes of pomologists have once more been dashed to the ground. Plum blooms were specially abundant and strong. The crop is well nigh nil. Apples here did not bloom very freely, but there were abundance of blossoms for a crop. Now the embryo fruits have vanished, and instead there is a crop of maggots and grubs, heavy enough to please even "P. F. C." Pears are almost equally thin of fruit, though they have suffered less from insects. Thus the three most valuable fruit crops of the year have fallen victims to east winds or grubs. The loss is the more to be deplored, as it can hardly be put down this year to weather of killing severity. As far as the weather went, the fruit crops ought to have been safe. As a matter of fact the more tender Peaches, Nectarines, and Apricots have escaped, while Apples, Pears, and Plums are, writing broadly, wrecked. Cherries have also escaped so far, though many of the fruits are falling, apparently through the withering power of the east wind. The early Cherry crop is, however, tolerably safe, and promises well. Gooseberries, Currants, and Raspberries are also a heavy crop. Strawberries are somewhat irregular, but seem generally good. It has been our habit to plant out forced plants with very marked and striking success; to take one heavy crop the next year, and then dig them down. This season the one heavy crop is not forthcoming. The partial failure is not owing to heavy autumnal fruiting. Every cultivator knows such plants yield a few pickings of fruit in the autumn; but last season these Strawberries out of season were by no means more numerous than usual. It is also well known that such plants seldom yield such early nor such fine runners as young yearling plants; neither are the individual fruits so large; but for gross weight and quality of fruit I have not yet found any plan that will give so much fruit in so short a time as that of planting out the forced plants, taking one crop of fruit from them and forthwith digging them in in time to crop the ground with Broccoli. This mode of culture seems a good one for utilising and exhausting the excess of growing force and vital power left in the crowns of forced Strawberries by the liberal feeding and superior cultivation to which they have been subjected. It is impolitic and, perhaps, also impossible to use up all the force in furnishing one crop. By at once planting out the forced plants and carefully attending to them the whole of the residuum of vital energy is utilised in the production of the crop of the next season. Such seems the simple philosophy of the matter, which has been confirmed by the most satisfactory practical results through a period of more than twenty years. But this rule of uniform success, like all others, has its exceptions, and this year is one of them, though the reason of the partial failure is by no means obvious, notwithstanding the information so kindly given in THE GARDEN by several obliging correspondents.

D. T. FISH.

POT CULTURE OF THE STRAWBERRY.

The forcing of a plant which bears the vicissitudes of our climate and ripens its fruit in the open air as early as the middle of June may appear to the uninitiated a simple matter; they think they have only to provide a number of plants, place them in a heated structure where they can have warmth and moisture, and patiently await the ripening of the crop, but in the majority of instances disappointment is the result; and not only amateurs, but professional growers more frequently fail with the Strawberry, the Cherry, and the Plum than with any other fruit to which artificial heat is applied. In all successful forcing places an effort is made to obtain early runners, and as these are most freely produced by maiden plants of one year's growth, we will assume that a good plantation was made last August—if near the margin of a walk and convenient for water, so much the better—that all the flower-scapes have been pinched out of the plants from which the stock is to be layered, and that an abundance of healthy runners is now growing freely. The first step will be the filling of a sufficient number of 3-in. pots with rich, friable loam of a calcareous nature, which has been some time cut, stacked, and properly prepared for potting purposes. If too light or wet, a little dry cow manure rubbed through a sieve and thoroughly incorporated with the loam will do good service in preventing it from becoming plastic under pressure, while its stimulating properties will hasten the formation of roots, no unimportant consideration when it is borne in mind that strong crowns have to be made and well ripened by the end of October. Partly plunge the pots with a trowel in blocks or rows quite clear of shade from the foliage of the parent plants, insert the joint of the first runner slightly into the soil, and secure it with a small stone or peg. Cut off the point of the runner beyond to concentrate all the nourishment which the parent can give. Keep them well supplied with water, and allow them to remain undisturbed until the pots are well filled with roots. When the roots begin to show through the bottom holes sever the runners and convey them to a cold frame or the foot of a north wall, where they will be protected from the direct rays of the sun, and never allow them to want for water. As I have before stated, time being an important object, no delay must be allowed to interfere with the final shift into the fruiting pots, which need not exceed 6 in. in diameter for plants intended for early forcing, and 7 in. in diameter for mid-season and late kinds, which will succeed them and carry on the supply until ripe fruit can be gathered from the open air. If new pots are used they should be well soaked in water before they are taken to the bench, and old ones will be the better for being washed, at least inside, as cleanliness is an important point in all horticultural operations. They should also be well crocked for the twofold purpose of allowing water to pass away freely and to prevent the ingress of worms, which soon work irreparable mischief if allowed to gain a lodgment.

Compost.—Although the Strawberry will grow and thrive in any good garden soil, it is needless to say that a plant which luxuriates in a solid border and resents disturbance of its roots will give the best results when firmly potted in a strong loam that would gladden the heart of a successful Melon grower. This important point—the selection of suitable soil—having been settled, it should be stacked for some months where it can be protected from winter rains and exposed to the influence of the atmosphere. When ripe and fit for use a sufficient quantity for one year's use should be chopped down and wheeled into an open, airy shed. Rotten manure, free from worms, or old cow manure in the proportion of one barrowful of manure to five of soil, one peck of soot, and a like quantity of bone dust may then be added and thoroughly mixed by frequent turnings. A sound sustaining compost in which the plants will thrive without feeding, and form plump crowns and sturdy foliage without becoming gross will then be ready for use as it is wanted, provided it is dry

enough to bear ramming without becoming adhesive; and this important condition can always be secured and the compost greatly improved by making it up some weeks beforehand. But if from any unforeseen cause this point has been overlooked, it will be better to defer potting for a few days and to use smaller pots than to invite the failure of an expensive crop by using wet soil.

Potting.—I may here inform the amateur who has perhaps never potted a Strawberry in his life that he must commence by casting a pinch of soot over the crowns to keep back worms, and then fill the pot rather more than half full of soil, and ram it well to prevent the young plant from sinking too low when all is finished. He will then place one plant in each pot, compress the soil firmly about the roots, and, while guarding against burying the crown, see that it is sufficiently deep for a small quantity of soil to cover the ball, and yet leave plenty of room for water and future top-dressing. It is very important that the balls of the young plants be kept constantly moist up to the time they are potted, as, independently of the fact that the flagging of a plant means ruin, no amount of after watering will properly moisten a ball which is dry at the time it is transferred to the fruiting pot. If the weather is very bright the plants may be set in a shady place for a few days, whence they must be conveyed to their summer quarters, where they may stand rather close together for a time until the pots get covered with foliage. From this time forward the great object will be the production of robust plants with short, stout leaf-stalks and plump crowns, which will throw up vigorous flower-scapes when forcing is commenced. To secure these conditions a light, airy situation with a hard surface, impervious to worms, should be selected for standing them upon. As they increase in size more room must be given them by a general turn over and rearrangement; all runners and weeds must be removed, and on no account must they be allowed to suffer from want of water. It is the practice with some to water overhead every evening, but in hot, dry weather the tender foliage of some kinds is apt to scald; and when this is the case I have always found it best to water each plant with a spouted can, as the moisture which rises from the ground is sufficiently plentiful to keep the foliage clean and healthy. Towards autumn, when the nights are longer than the days, less water may be given, but the plants must never be allowed to get dry; and in order the better to secure proper maturation I always make a point of elevating them on dwarf walls, planks, or shutters, supported on bricks or Seakale pots, where they remain until the time arrives for removing them to their

Winter quarters.—A period of complete rest being absolutely necessary, success or failure will greatly depend upon the winter treatment. If kept at all dry the best roots perish, and as watering in winter does not produce conditions most desirable, the baneful practice of stacking the pots on their sides in the open air, or placing them on shelves in draughty houses, should be carefully avoided. Confinement with other plants in houses from which frost is excluded does not improve matters, as the Strawberries never go to rest, and the latter condition being so important, it is much better to plunge the pots up to the rim in the open air than run the risk of enervating the plants by too much coddling kindness. In my own practice I always allow the plants to remain where they have been grown until danger of frost bursting the pots is apprehended; a large cold pit now full of ripe fruit is then prepared for their reception, and every plant is plunged quite up to, and sometimes slightly above, the rim in fresh Oak leaves. Here they remain, never requiring water until wanted for forcing, but instead of keeping them covered the lights are thrown off altogether in mild weather and only put on to protect them from heavy rains or intense frost, when a few dry Fern fronds are spread lightly over the crowns to save the expense and trouble of covering with mats. As the

forward plants are drawn into the forcing pit the latest batch is replanted in rows 1 ft. apart, where they root into the leaves, and set and ripen good crops of fine fruit three weeks earlier than we can gather from the open air. W. COLEMAN.

Pear Fertility.—This market or orchard Pear promises to maintain its name; its crop has held on bravely in spite of hurricanes that have caused quite two-thirds of the crop of most other kinds to drop. It is difficult to get really good market Pears; they must be prolific under the ordinary conditions of market garden culture, and but very few of the kinds we have are really suited for this kind of work. Even young trees, however, of Fertility two years planted are loaded with healthy looking fruits, and if they go on as they have begun, this sort will soon be popular.—J. G.

Outdoor Figs.—In contrast to the late unfavourable seasons for the Fig, the mild winter and spring which we have had suited it admirably, and the present outlook is all that can be desired. An abundant crop has already attained quite half its usual size. Once, and only once, I had the gratification of picking some fair second-crop fruit, but this was in a locality better suited than this for the growth of the Fig, and the autumn that year was unexceptionally fine.—C. MAXTED, *Kearsney Abbey*.

Syringing orchard house trees.—Against Mr. Hodgson's twenty years' experience which has led him to write against syringing orchard house trees I can bring twenty years' experience in favour of it. We give our trees (Peaches and Nectarines mostly) a thorough drenching with the garden engine in the morning between 6 and 7 o'clock, and in the afternoon between 4 and 5 o'clock. Under these conditions there is really no scorching; and when the trees have flagged a little in excessive sunshine, we do not mind syringing them overhead at mid-day with the sun shining directly on them; even then the drops of water do not act as burning lenses. I would not omit syringing the trees on any account; they seem to enjoy it so much. That is my experience.—J. DOUGLAS, *Lorford*.

SHORT NOTES—FRUIT.

Peach leaves (*T. S.*)—There is no fungus on the Peach leaves, and no trace whatever of insects. The pale patches arise from pallid spots where there is a deficiency of chlorophyll. These pallid spots soon rot away through impoverishment. Such cases often arise from too hasty growth; the leaves have no stamina, and they drop off at their weakest point.—F.

Seeding Apple.—I send you some Apples from a seedling tree fifty years old. It bears heavy crops every alternate year and flowers late. Is the sort worth cultivating?—W. W. [The fruits sent, though past their best, were fairly good; but we should like to see them in better condition before we can venture to answer your question. In what part of the country is the tree growing? Can it be seen?]

Melon High Cross Hybrid.—The finest crop we have seen of this Melon this season is in Mr. Bowring's garden at Forest Farm, Windsor. It seems to be a vigorous grower and prolific fruiter, for each plant is carrying about half-a-dozen uniformly large and handsome fruits, oval in shape, beautifully netted, and the pale green flesh is of the richest flavour. In fact, it possesses all that is required to constitute a first-rate Melon.

Mealy bug on Vines.—How can I get rid of this pest from my Vines? I have asked various gardeners, but can get no remedy so far. I have tried syringing with paraffin and water, but even this seems ineffectual.—A. E. P.

Strawberry Pauline.—With me this Strawberry is the earliest of all. We commenced gathering from it on June 1. It is not a strong grower, but produces very large trusses on short stalks and very little foliage. The fruit is not of first-rate quality, but handsome and firm, and would be useful for forcing.—H. J. E. [A good flavour in the sense of not being sour and a firm fibre.—ED.]

Frontignan Grapes cracking.—Can anyone tell me how to prevent Frontignans from cracking? They are growing by the side of Muscats just beginning to colour.—CONSTANT READER

EDITOR'S TABLE.

BAPTISIA.—Poor weak things in effect, form of spike, not good in colour, poor by day or night.

SWEET BRIER.—A bunch in blossom. Most welcome of wild Roses, with the breath of life stored in every pore.

THE IMMORTELLE.—The true yellow dwarf plant from N. Wales (Mr. E. Jackson). Fresh and myriad-blossomed, but with a slightly goatly smell. Good for rocks or sandy border.

PTEROSTYRAX HISPIDULUM.—This graceful flowering tree in fine condition from Bitton; the creamy white racemes are freely borne and very graceful and distinct.

BOMAREA SALSILLA.—A novelty among hardy plants, a kind of twining *Alstroemeria*, quite distinct, and though we have not seen it in the open air it is evidently a good plant.

LILUM GIGANTEUM, from Eriestane, Moffat, but it is not partly if from the open air, in which it looks best partly shrouded by the peat-loving shrubs among which it thrives.

TROPEOLUM POLYPHYLLUM.—Very bold and odd, and very graceful, too. A snake covered with flowers and delicate leaves and buds. Strong and free from the sandy soil at Grasmere.

ROSE and ROSEMARY.—A bunch of pink climbing Roses deeply fringed with Rosemary is a novel combination, and pretty, too, from Munstead, one of the few places (except cottage gardens) where Rosemary gets the place it merits.

SWEET PEAS.—The finest thing of the week—a noble fan-shaped bunch of Sweet Peas from Munstead. They began to come out at the end of May (sown in September); there are plenty of them, four flowers on a stalk, and sometimes five.

THE YELLOW TREE LUPINE.—We cannot say too much in favour of this valuable plant, with a delicious honey-like scent and clear canary-yellow flowers. A fine form of it comes from Mr. Stevens. A bush of it is enough to scent a garden.

SPIRÆA ARUNCUS.—A poor form of this. For years we did not know this was a good plant, owing to the prevalence in botanic gardens of the poor green forms. Out of botanic gardens at that time it was not grown. A noble plant if we can get the right plume-like creamy white form.

CALOCHORTUS LEICHTLINI (true).—A pale, dove-like beauty with dark eyes. From Mr. Rawson, Bromley Common, who will, we hope, succeed in growing it in the open air. Distinct in colour from other Butterfly Tulips or Mariposa Lilies.

PRIMULA CAPITATA.—It is pleasant to meet this charming purple Indian Primrose so soon after our own have disappeared. Is it the amount of sun that makes our many native Primroses disappear so suddenly this year? We have had them long enough to be grateful for them; nothing stays so long with us.

MACKAYA BELLA.—I send you a flower of *Mackaya bella*, which I think a most attractive

one, produced in my conservatory. The plant is about 5 ft. high, and is a slender evergreen shrub, growing round a pillar. The foliage is dense and dark green in colour. It is blooming moderately; perhaps more flowers may be produced.—T. L., *Torquay*. [A delicately beautiful flower, figured in *THE GARDEN*, Vol. XVI., p. 150.]

ROSA NUTTALLIANA.—A lovely Rose; wreaths a yard long; peculiar shade of rose-pink. From Messrs. Rodger, McClelland, & Co., of Newry. Will none of the many in England who have banks and braes at their disposal plant a few dozens of the wild Roses of the northern and temperate world?

PAPAYER ALPINUM.—After the glare of the larger Poppies and their evil odours, the white alpine comes in daintily (from Munstead), to represent the more angelic qualities of the tribe, delicately crimped and with a yellow centre to its pale white flowers; it is charming to be near one.

PHLOMIS RUSSELLIANA.—A distinct and bold herbaceous plant, as good in its way as the bush Jerusalem Sage named last week; both good in bold vases or the larger groups of cut flowers, though not for the table itself, which should have all the most beautiful and delicate forms. From Grasmere.

RHOODENDRON VEITCHIANUM.—Large, pure white vases, fringed and exhaling grateful odour. It is among these fair and fragrant flowers that we get the highest type of the race, admirable, too, as cut flowers; whereas the hardier, commoner sorts are not always so good indoors. From Mr. Rawson, Bromley Common, and well grown.

PINK LORD LYONS and MRS. SINKINS.—No handsomer, bolder Pink than this, full of fragrance and fine rosy colour. Equally good, as a white, and with a fine fragrance, too, is Mrs. Sinkins; both these excellent Pinks should be grown where border flowers are cared for. From Mr. Ware, who takes a just estimate of Pinks.

THE BOTTLE BRUSH.—I send some spikes of an old favourite of mine, the Bottle Brush (*Metrosideros floribunda*), which is seldom seen now; the plant is carrying some thirty or forty heads, and looks very pretty and is much admired.—H. ELSLEY, *Stifford Lodge, Romford*. [A very welcome old flower, brilliant and distinct, and better grown than usual.]

CLEMATIS LANUGINOSA CANDIDA.—A transparent white flower over 6 in. across, and described by Mr. Cornhill as the best white for massing and groups. It has the faintest tint of lilac in the flower. These large Clematizes are admirable for various purposes, but some of the smaller sorts, now little thought of, are the most graceful.

IXIOLIRIORS FOR CUTTING.—These are charming flowers for cutting; their delicate blue blooms look peculiarly well in a vase in a light position. The beautiful wavy habit of the stem, which nothing can make stiff or ugly, is a great aid. We have never seen anything prettier than a simple glass with these looking into the room of a light-curtained window. They should be grown for cutting as well as for other uses.

PANSIES.—Mr. Forbes, of Hawick, writes "I send for your table for inspection some fancy Pansy blooms. They have bloomed most

profusely for many weeks, and will continue to make a gorgeous display during the summer and autumn months." [These are the boldest strongest Pansies we have seen this year. Mr. Forbes would oblige by sending us the name of the fine Wallflower-coloured kind. Our Scotch friends should never weary in their attention to this wonderful flower, which illustrates in itself all the fine colour of alpine plants, and has even the depth and iridescence of the Gentian in its blues and purples. The Wallflower-coloured kinds are a great gain.]

PHYLLOCACTUS AMENUS.—A splendid thing, beyond power of man to paint, or give much idea of. The petals in several rows; the hinder ones scarlet, the front ones scarlet, too, but bordered deeply with violet-crimson, both brilliant hues merging together in the end, an example of a Cactus really worth growing. The flower 9 in. across; a very glory of colour, and fine in form, too. From Mr. J. T. Peacock's collection.

THE ARBOUR ROSE.—"The big pink Rose I should hardly call a Brier; it is what I have always known as the old Arbour Rose, and I have no other name for it; it has no thorns and red stems, and a cataract of it shooting and tumbling about is the prettiest thing I know." Can any of our readers say if the above name is known to Rose growers? It represents an open, but handsome Rose, stronger in colour towards the centre.

GLOXINIAS FROM READING.—A gathering from Messrs. Sutton's large collections of these beautiful stove plants shows well to what a high state of perfection they have been brought by that firm. The flowers sent are remarkable for their large size, fine and varied colouring, every tint almost from the purest white to the richest crimson being represented. Some beautifully bordered with white are very showy, and some, again, are copiously freckled. The flowers sent are for the most part erect, but some, and not the least beautiful among them, are of the horizontal flowered type.

PEONIES.—Having seen very large blooms sent from Paris during the present season, we rather doubted the fitness of our climate to produce flowers as good, but Mr. Stevens sends us some as fine as we have ever seen. Certainly the common herbaceous Peony, as it is called, in its finer forms is a wonderful flower. Some of the varieties, as is now well known, are scented too, but although the scent is rich, it is not exactly the sort one likes to have much of, and therefore, except in large halls, and for the bolder flower effects, the plants are better seen out-of-doors. For a rich bed in a nook along the side of a lawn there is probably nothing so fine. Where a bold and distant effect is sought they are admirable. It is easy to group them with some fine autumn flowering plants which will come in after the Peonies go out of bloom, and thus prevent what might seem too great a waste of space, even for such handsome flowers. The greatest beauty of Mr. Stevens' group is *Mdme. Calot*, which is very large in size and of a most delicate pink and white, every one of the many petals being like some delicately tinted shell.

DELPHINIUMS.—We wish we could give all an idea of the glory of these with their well-grown spikes that one has to cut or bend to get into a basket 3 ft. long. And then the colour; we go into raptures over alpine flowers that produce a pip or two not nearly equal to some of the lovely iridescent blooms that these throw off so freely. They are the finest flowers of the

open air, and we often regret so little is made of them artistically in the garden. Mr. Stevens grows them well with the addition of plenty of manure to a naturally light soil. Among the kinds he sends, which seem to us excellent, are—*Eugene Verdier*, *Argus*, *Madame Pilé*, *Cantab*, *Wilhelm Pfister*.

PANSIES NORTH AND SOUTH.—Mr. Fish shows us by many pretty Pansies and Violets how much he is devoted to these things, and argues elsewhere that the further north we go the greater the beauty of these flowers. Well, it may be so, but they are beautiful everywhere, and lately in walking through the market gardens in the western suburbs of London, in rapidly building neighbourhoods, we were pleased with their vivid colour and beauty. In these much indented isles, even in the south, there are many local causes which benefit the *Viola* race, and give them sufficient moisture; they do well everywhere in pure air, though no doubt in Scotland, in great series of rugged mountains in Wales, and the broken parts of northern and southern Ireland they have in the hill ground and mountain air the conditions that suit them best.

ORCHIDS.

EXHIBITION OF ORCHIDS.

A FINER display of flowering Orchids than that which has for some weeks past formed the chief attraction in Mr. Bull's nursery in the King's Road, Chelsea, we have not seen. In one spacious span-roofed house is gathered together a vast assemblage of flowering Orchids, some 2000 or upwards, representing every important class of garden Orchids in endless variety. There are *Aerides*, *Saccolabiums*, and *Dendrobies* from India, *Phalaenopsis* from Manilla, *Disas* from the Cape, *Cypripediums*, *Cattleyas*, *Laelias*, *Odontoglossums*, *Masdevallias* from the cool regions of South America, while even the North American *Moacasson Flower* (*Cypripedium spectabile*) is represented by beautifully flowered specimens, rendering the exhibition a thoroughly representative one. The plants are arranged on central and marginal stages, and are intermixed with numerous beautiful foliage plants, so as to relieve the glowing masses of colour effected by such a mass of flowers. *Masdevallias* and *Odontoglossums* are placed in juxtaposition to such kinds as *Cattleyas*, the cumbrous growth of which is thereby improved in appearance, and their gorgeous colours are set off to better advantage. The major portion necessarily consists of cool house Orchids, this being the height of the blooming season, and though it would be impossible to deal exhaustively with the collection in a short notice like this, we may mention a few of the more remarkable plants.

Odontoglossum vexillarium, which is unanimously considered peerless among Orchids, may here be seen in all its wealth of beauty, and never before have we seen such a fine display of it, which may be counted by the hundred. The variety of shades of colour in this large collection is remarkable, every intermediate shade between the almost pure white to a rich deep rose being represented. Some varieties are noteworthy for the large size of the blossoms, the labellums of some of which measure 3 in. across, while some, again, are more remarkable for the richness of colouring. One variety of *O. vexillarium* above all others is worthy of notice; it is one Mr. Bull has named *rubellum* on account of the uniformly rich ruby tinge the blossoms possess. The important character of this variety is, however, its late season of flowering, which is about August, a most

opportune season, as there are but a few stragglers in flower of the ordinary type. There can be no mistake about the late flowering character of this variety, for here are the plants growing side by side and under the same conditions of treatment to the ordinary forms, which are in full flower, while those of the *rubellum* variety show no sign of flower-spikes, and will not for some time. The name for this very distinct variety is not, we think, aptly chosen, as there are so many deep coloured varieties to which the name would be equally applicable. The name *serotinum* would have been far more appropriate, as well as more expressive of its valuable late-flowering quality. The chief part of the collection of *O. vexillarium* forms a massive group, several yards square, opposite the entrance of the house, and its effect on entering is very captivating. *O. crispum*, *Pescatorei*, *citrosimum*, and other popular species are in great numbers and in endless variety, some rosy tinged and spotted forms of *O. citrosimum* being particularly noteworthy.

Masdevallias form an important feature, many species being in flower, and among them may be singled out such varieties as *M. trochilus*, the true *Chimæra*, *Shuttleworthi*, and several others; while among the more showy type are *M. Veitchi*, *Lindeni*, and *Harryana*. By far the most important of these is the latter, of which there is a wonderfully rich collection of varieties, all more or less distinct, and several so much so that it has been found expedient to give them varietal names. The range of colour, as well as size of flower, in this species is very remarkable, and a good idea of this variation is well exemplified in this collection. The principal varieties that have received distinctive names are the following. One of the finest and most distinct withal is named *conchiflora*, on account of its exquisite shell-like form, which has the appearance of being chiselled out of marble, so uniform is the scooping out of the flowers, and so firm is the substance of the flower. The colour is a delicate rose-pink, streaked with parallel lines of a darker hue. *Regalis* has a very large and fine flower, of a very deep sanguineous crimson with a flush of violet overlaying it. *Brilliantissima* is well named, for it is the brightest tint we have yet met with in a *Masdevallia* and quite indescribable; and *magnifica* is of a similar brilliant carmine tint, quite distinct in form. Bull's Blood variety is seen here to perfection, the colour being intensely rich and deep, though the size of the blossoms is below that of many others; *mirabilis* has large, finely-shaped flowers, the colour of which has a distinct suffusion of blue; *gloriosa* and *ornata* are likewise very fine. The variety *acanthifolia*, so named on account of the prickly protuberance on the petiole of the leaf, is one of the most beautiful of all, and, moreover, one of the rarest, as we believe few plants of the true form exist in the country. The flowers, both as regards size, form, and richness of colour, are simply perfection. All these *Masdevallias* are mostly represented by fine specimens, each bearing quite a sheaf of spikes, which, as may be imagined, create a beautiful sight.

Sobralia macrantha insignis is the finest form we have seen of this noble Orchid, the labellum measuring from 3 in. to 4 in. across and of such a rich amethyst tint. It is, moreover, of very dwarf growth, attaining only from 2 ft. to 3 ft. in height.

Cattleya Mossie is represented in marvellous variety, the forms being so distinct from others as to have been considered worthy of naming. For instance, *aurantiaca* has an unusual suffusion of yellow in the labellum; *magnifica* is remarkable for the intensity both of the sepals and labellum; in fact every intermediate shade between a beautiful pale pink variety named *pur-*

cherrima and the deepest may be observed. Among other *Cattleyas* finely in flower are *C. gigas*, some of which have four flowers on a spike; *C. amethystina*, *C. Trianae*, *C. Warneri*, of which there are several forms all beautiful. *Laelias*, too, are numerous, particularly *L. purpurata*, among the varieties of which the one with the broad non-reflexing sepals and intensely rich labellum stands out prominently from all the others. *L. elegans alba* may be seen in fine condition, showing admirably what a lovely Orchid it is. Among other Orchids in the superb display that are out of the ordinary run are *Odontoglossum gloriosum album*, having flowers with a white ground; *O. hebraicum*, the handsome species figured a fortnight ago in *THE GARDEN*; *O. nebulosum*, in beautiful variety; *O. imperiale*, a handsome new variety with a spreading branched spike; *Cypripedium levigatum* Stonei and the new *C. Mastersianum*, which is one of the most distinct of the now numerous family of Lady's Slippers, the colours being so soft and blended together; *C. Lawrenceianum* and various other species are finely represented. Other noteworthy species are the new *Oncidium tetracipis*, *Dendrobium philippinense*, *Epidendrum falcatum*, *Zygopetalum Gautieri*, *Promenaea citrina*, *Lælia majalis*, *Oncidium pubes*, *O. macranthum hastiferum*, *Cymbidium Lowianum*, and *Nanodes Medusæ*, all beautiful and interesting, and to some of which we shall again allude. W. G.

Rare Cattleyas.—From Mr. Peacock's collection of Orchids, Sudbury House, Hammer-smith, we have received, blooms of two very fine *Cattleyas*, *C. amethystoglossa* and *C. Schilleriana*. The former is extremely pretty, the sepals of the flowers being copiously spotted with purple on a pale ground, while the labellum is of an intensely rich amethyst. Mr. Peacock informs us that this is the first bloom from the last importation. *C. Schilleriana* is likewise handsome, the dark chocolate of the sepals being in such striking contrast with the richly-coloured labellum, which is beautifully pencilled and streaked. Both are fine Orchids and may, without hesitation, be included in even a small selection.

Three forms of *Odontoglossum vexillarium*.—We are surprised at the noble variety and colour in this now famous Orchid from Mr. Thompson, Higher Fensicowles, Blackburn, who sends us three forms—one a fine deep rose, another very large and almost white, and a third a delicate white and rose suffused in almost equal proportions, but with a fine and strongly marked eye. Of the three we think the nearly white, except the upper part of the flower, the finest type of this species we have seen, and thank Mr. Yates for letting us see so much of the beauty of his Orchids.

Dendrobium formosum giganteum Lemoiana is the name given by Messrs. Heath, of Cheltenham, to a very fine *Dendrobe* exhibited on Tuesday last at South Kensington. It differs from the ordinary form of *D. f. giganteum* in having a lemon instead of an orange coloured blotch. The variety of *Cologney cristata* named Lemoiana has a labellum of a similar colour, but in that case the variety was not named on account of the lemon colour, but in compliment to Sir Charles Lemon which is intelligible enough; but the varietal name of this fine *Dendrobe* is not very appropriate; *citrina* would have been more expressive. Both it and the other form of *giganteum* that Messrs. Heath have imported so largely from a new locality in Upper Burma are so beautiful that every Orchid lover should possess them.—W. G.

***Mesospinidium sanguineum*.**—This is certainly one of the most distinct Orchids grown, and although the individual blooms are not large, their brightness atones for want of size, being, as the specific name indicates, blood-red. When grown on into a large specimen, carrying a score or so of spikes, this little species is very effective,

especially when slung in a basket near the roof, a position which suits it best, although I have seen good specimens grown in pots. When pots are used, however, great care must be taken not to overpot, as, not being a very vigorous grower, it quickly suffers from an overdose of water. Its home is in the cool house, but it will thrive in an intermediate structure. Chopped Sphagnum and peat and charcoal in lumps form the best compost for it.—J. C. B.

***Dendrobium formosum giganteum*.**

—This variety will, I think, become popular owing to its free flowering habit and robust growth. Imported masses are, with us, growing as freely as established plants. I bought two imported masses, newly arrived a month since, each with about forty strong buds, young and old, to it. I chopped the two into seven pieces to induce back breaks, and put them in separate pots, and they are now all pushing strongly, some of them having nearly as many breaks as bulbs. One piece with six bulbs I pruned, dividing the whole of the six away to within less than an inch of the base, rubbing some styptic over the wounds, and it is pushing just as strongly as the others, showing two stiff breaks and a swelling bud. When potted a month since I could not detect a lead on this piece nor feel a bud. In all the masses the roots were alive, more or less, and soon plumped up, which has no doubt promoted such an early start.—J. S. W.

***Cattleya Sanderiana*.**—The first time we saw this glorious new Orchid was in Stevens' rooms on Thursday last, where a fine cluster of flowers, five in number, from one sheath was shown from Mr. Brymer's collection. It is described as a "gigantic and noble form of *C. gigas*," and certainly the flowers exhibited bear out fully this high encomium. The flowers are very large, being fully 9 in. across the outspread sepals. The latter are, moreover, very broad and of a uniformly rich deep rose tint. The labellum, which is nearly 3 in. across, is of a fine amethyst hue prettily grained with white, while on the throat there is a large conspicuous blotch of yellow, from which pencillings of orange traverse the whole length of the throat. It is in short one of the most gorgeous of Orchids, and we only know of a possible rival, and that is the Burford Lodge variety (*burfordensis*) of the same *Cattleya*. Upwards of 340 lots of *C. Sanderiana* were sold at Stevens' on Thursday, some of the finest masses realising very high prices.—W. G.

SHORT NOTES—ORCHIDS.

Bedding-out Orchids.—The system of bedding-out Orchids, i.e., placing several plants together in a pot or pan and showing them as single specimens, is most reprehensible, and should be discouraged. As well might two bunches of Grapes be tied together and shown as one bunch. Good gardening is retarded rather than promoted by such practices.—J. C. F.

***Odontoglossum vexillarium*.**—A variety of this, remarkable for the intensely deep ray-like markings in the centre of the flower, making it distinct from any other we have seen. From Sir W. Marriott's always interesting and well grown collection.

***Dendrobium moschatum*.**—A glorious raceme of this fine *Dendrobe* reaches us from Mr. Peacock, who has in his garden at Sudbury House a plant bearing eighteen spikes, carrying altogether over 200 blossoms. This plant must indeed be a very fine specimen, and we should think as fine as any in cultivation.

***Lælia majalis*.**—A fine bloom of the lovely *Lælia majalis*, showing this Orchid in all its perfection of beauty, the flower being large, the sepals of a rosy pink, and the labellum beautifully pencilled and streaked. From Sir W. Marriott.

Odontoglossum Halli leucoglossum differs from the type in the labellum being white instead of yellow. It is a handsome and large Orchid, and one that is much sought. There is a kind of tiger-in-a-passage look about the flower. From Sir W. Marriott.

Orchids at Upper Holloway.—In the Victoria Nurseries Mr. E. S. Williams has had for some time a very fine exhibition of flowering Orchids, including some grand examples of *Cattleyas*, *Lælias*, *Vandas*, and other beautiful genera. We shall have occasion to refer to this exhibition on some future occasion.

***Cattleya Percivaliana*.**—The first flower of this supposed new *Cattleya*, which has been waited for with so much interest, is now expanded in Messrs. Shuttleworth & Carder's nursery at Park Road, Clapham. The blossom, though small, and unfortunately badly damaged by a voracious slug, is quite sufficient to reveal the extreme beauty of the variety. It unmistakably bears the stamp of the *C. Mossii*, notwithstanding that it is said to be a variety of *C. labiata*. The Mossie character is most apparent in the labellum, which more resembles that of *C. Mossii* both in shape, colour, and markings than that of *C. labiata*. It is, however, superior to any variety of *C. Mossii* that we have yet seen, inasmuch as the labellum is so richly coloured, a large blotch of deep velvety crimson being very prominent in the throat of the labellum. The latter is exquisitely fringed and margined with a lighter tint than the other main portion, which, besides the dark blotch, is of a brilliant amethyst, suffused and pencilled with a warm orange tone; the sepals of a uniform rosy purple tint. Whether it be a variety of *C. labiata* or Mossie is of little moment, for it is, so far as the specimen under notice is concerned, a lovely Orchid, and one that must inevitably become popular. Its value will be greatly enhanced if its true flowering season comes in between the summer and autumn varieties of *C. labiata*.

NOTES AND READINGS.

MARKET FRUITS AND VEGETABLES.—Mr. Gilbert says the tastes of the great metropolis run in favour of big fruits and vegetables, whether they be good or bad, or something to that effect. This is hardly correct, but it is a fact that appearance has much to do with the sale of those otherwise bad coarse Grapes which no connoisseur would touch could he get another, the Gros Colman. When fairly good, fruiterers will buy it before any other kind, and to many of their customers it is as good as another in other respects. It is the same with Strawberries and other fruits—the finest looking are most acceptable in the market; and those who supply the market know that, and the buyers must take what they produce. In private gardens it is otherwise. Quality is not lost sight of, and none know better than those accustomed to home-grown fruit the difference between it and market samples. The market men will not alter their ways till they get fruits that are good as well as good-looking, when we may be sure they will discard those that answer to the last description only. The worst fault of most of the fruit that finds its way into the market is that it is not nearly ripe. A thoroughly ripe bunch of Grapes is the exception, while immense quantities of sour Grapes are sold, also green Peaches, sour Plums, Apricots hard as knobs, and half-ripe Strawberries and Gooseberries. Apples, Pears, Oranges, and Pine-apples are the only things one may get good examples of easily.

WINTER GARDENS.—The nearest approach to a permanently planted winter garden we have yet seen is the New Holland house at Kew. It contains mostly such subjects as succeed well together, but an "enjoyable winter garden" like that mentioned in *THE GARDEN* lately, containing such permanently planted out subjects as Citrons and Lacquerias, Camellias and Luculias, hardy deciduous shrubs and warm house plants, it is to be feared is not practicable. The idea of the plants being continually changed to keep up the display may cause "a sense of discomfort," though changes are said to be light some rather than otherwise; but unless permanently planted out collections can be preserved in better health and appearance than we have ever seen them, one feels they would rather endure the discomfort variety and change might

cause. Banks of Violets, Primroses, Narcissi, and other hardy plants "shooting up somewhere" in the background of such a garden are things to dream about, but what we shall not realise in a satisfactory way. Gardeners know from certain experience that one cannot have great variety or very successful results from permanently planted out conservatories. The idea is good, but impracticable. One can conceive, as has already been suggested in these pages, of a perfectly cold house filled with early flowering hardy plants that would afford a paradise of bloom for three months of the year, and such a structure might be so managed that the flowers and plants of the season might be displayed in it without frequent disarrangement; and surely such a display would be as enjoyable as any permanent arrangement could be. By the use of plants in pots where needed, a ten times more attractive display can be made, and the pots can easily be plunged out of sight. The most fatal objection to "G. J.'s" proposal is the necessity of keeping the plants in any glass house free from insects. Smoking a conservatory renders it uninhabitable for a week after, and it would need frequent smoking if such subjects as *Lapagerias*, *Roses* and *Azaleas*, &c., were permanently planted out. In one of the most attractive conservatories and winter gardens we have seen, much used by the family for reading, writing, and lounging in, there are many suitable subjects planted out, but it is mostly furnished at intervals from auxiliary houses according to need. So offensive was the smoking found to be, that a shed was attached to it for the special purpose of receiving infested plants to be there smoked and cleaned. Not a drop of water either has been spilled in the house since it was put up, except to water the plants, and, being kept dry and at a comfortable temperature all the year round, it is a truly enjoyable resort.

ALPINE GARDENS & COLLECTIONS.—Rockerries or alpine gardens, if they are to be popularised, must be planted to afford the most pleasure to the greatest number of people. There are thousands of lovers of flowers who would not care a rush for some alpine collections. There is no occasion to exclude many species that are more curious or interesting than beautiful and useful, but to render a rockery garden attractive it must be pretty, if not showy, and this can be accomplished easily by judicious selection, and by planting the salient points with good masses of the most attractive subjects, and, fortunately, these are, as a rule, readily procurable and easily cultivated. This can be done without in any way interfering with the merely botanical element of a collection; in fact, one fails to see the purpose of rockeries in private gardens if they are not made subservient to these ends. A mere "collection" of alpine plants might be placed anywhere, but a rockery means a garden. I trust some consideration will be given to this subject in planning the new rockery at Kew, which the public will see and copy. The "dotted system" is objectionable in rockeries as in the hardy flower border, or more so; but it is the system followed out in not a few instances. I was looking at a rockery in a botanical garden the other day; it consisted of an even bank of stones set out in the most methodical manner, and all the plants were dotted as methodically over its surface. There was not a single good mass of anything in it to show the capabilities of any plant for such a purpose. In planting a rockery, put in plenty of such subjects at the beginning, and in good masses, as *Arabis*, perennial *Candytufts*, *Lithospermums*, creeping *Phloxes*, *Auriculas*, *Narcissi*, *Lily of the Valley*, double *Daisies*, giant and fancy *Polyanthuses*, *Prim-*

roses of the common kind, *Tulips*, *Forget-me-nots*, *Saxifraga Wallacei*, *palmeta*, and *altissima*, *Anthericum*, *Primula Sieboldi* in variety, *Rock Roses*, *Linum Douglasi*, annual dwarf *Tropaeolums*, and the like—popular and effective species and varieties that grow fast and produce effect almost as soon as they are planted. Other and less conspicuous plants can be added as may be found convenient or desirable.

THE ELECTRIC LIGHT.—Recent experiments with the electric light have not been encouraging. At Dr. Siemen's own garden the results during the past year have, according to reports, been next door to a failure; and the experiments made at the Palace of Industry, at Paris, have been quite a failure. Without a glass screen of some sort between the electric light and the plants the latter, it appears, cannot stand its influence, and this was apparent not only in the case of plants exposed continuously to the light, but in the case of those which had only been exposed to it a short time or at regular intervals. When common transparent glass globes were placed over the lights things went on decidedly better, but, as the reports put it, the plants did not then love the "light," but only withstood it better. It appears to exert some feeble influence on the growth of plants, but its advantages are nil. It is not, however, concluded that the electric light will always be useless for horticultural purposes but it is useless in its present form. It appears that we want a more powerful radiance in the lamps, which means additional cost—already too great—and which, taken into consideration with the fact that fruits, flowers, and vegetables are imported from countries where the natural "illuminating power" is sufficient, does not bode well for its usefulness. In common parlance, the game is not worth the candle. PEREGRINE.

ROCK WORK—ALPINES.

Linaria hepaticifolia.—This is a pretty little rock plant. Instead of the roaming habit of the usual run of *Toadflaxes*, it forms a dense tuft of small leaves thickly dotted over with tiny lilac flowers. It has been in flower nearly a month with very little variation.

Horminum pyrenaicum is a capital rock plant of a deep rich violet colour, with long spikes of pendulous flowers. It is figured in Wooster's "Alpine Plants" (2nd series, plate xxxvi.), but that plate does not give a correct idea of the plant, and has evidently been drawn from a forced specimen. On my rockeries where it is now in bloom, the flowers are densely set, and the whole plant forms a close tuft with seven flower-stalks, each 9 in. or 10 in. high, and bearing from forty to fifty flowers, always in couples. There are only two species known. Wooster recommends a moist situation for it, but here it has done remarkably well with ordinary treatment on a low rockery made of boulders, the soil being light and containing a large proportion of leaf-mould. It is well worth the notice of all lovers of rare alpine plants.

Erodium Reichardi is a very tiny member of the interesting family of *Heron's-bills*. It has pure white flowers, not unlike the *Wood Sorrel*, and with pale pink lines radiating from the centre. This plant appears to have been in cultivation for many years (since 1783), but it is very seldom seen in general collections.

American Violets.—Col. Stuart Wortley wrote you an interesting note upon *Viola pedata*, which he thought would prove useful for spring bedding; but this is not our experience. They are most interesting and very pretty, but the flowers are such tender morsels that they vanish very quickly. Slugs seem particularly fond of them and devour the blossoms and leaves alike; perhaps they are American tit-bits to these gourmands, for they seem to leave all the other *Violas* alone.

Viola biflora has been very pretty and floriferous, having small yellow flowers in couples. *Viola primulaefolia* has small pure white flowers, and *Viola delphinifolia* has large lilac or dove-coloured flowers, reminding me of the old *Viola cornuta*. These American *Violas* are all worth growing, but they require special provision on rockwork, and I do not think they will ever be suitable for border work.

Ramondia pyrenaica is doing well with us this year. It evidently wants plenty of sunshine to raise its thick, leathery leaves, so that the lovely trusses of pale lilac flowers can find their way out from beneath them. One plant now bears ten large spikes of bloom, and is our chiefest ornament.

Aquilegias.—Although dwarfer than usual, owing to the dry season, I think the *Columbines* are more floriferous and prettier than ever. Mrs. Davidson sent me a plant of *A. fragrans* last autumn, and it is now in bloom. I believe this is the true *fragrans*, which was thought to be lost. It has light, flesh-coloured, or lilac blooms, as stated in "Hardy Plants" (Johnson's "Gardeners' Dictionary") says "yellow striped," which is certainly wrong), and has an agreeably fragrant scent. The *A. glandulosa* plants obtained from Newry have all proved to be common sorts, and, so far as I know, we have not yet recovered the true *A. glandulosa*. Gregor's variety proves to be identical with Thompson's *A. glandulosa jucunda*, which comes quite true from seed. This is the most beautiful and useful *Columbine* after all; its flowers measure nearly 4 in. across. We have a very interesting lot of hybrids, one especially from *A. glandulosa*, and alpine promises to be of value, but my friend Mr. Harvey, thinks it almost identical with a variety sent from the Pyrenees with deep blue sepals and clear white petals. We have also a very interesting double *Columbine* clearly striped red and white. Our finest *Aquilegias* are those growing in moist corners upon the rockeries.

Acena pulchella is a curious plant, very different from *A. macrophylla*, which is on every-one's rockery, covered over with rosy balls of spiny flowers. *A. pulchella* has more beautiful leaves, like finely-cut small *Rose* leaves, forming a dense tuft, from which rise numerous straight stalks 6 in. high, each bearing a small whitish globe of spines.

Saxifraga intermedia.—Another lovely plant, kindly sent a year ago by Mrs. Davidson, proves to be, as far as I can make out, a hybrid between *S. longifolia* vera and *S. pyramidalis*. We have all these fine *Saxifrages* in flower, and *S. intermedia* is the finest. It carries a flower-stalk 18 in. high and 15 in. through, much branched and covered throughout with lovely white flowers spotted with pink, forming a perfect cone of flowers. *S. longifolia* vera is similar, but not so tall nor so fine, and of course the well-known *S. pyramidalis* is much taller and altogether more diffuse. We have also *S. MacNabiana* in fine flower, and very beautiful it is with rich purple spottings and centres. It is a great treat to see all these fine *Saxifrages* in full bloom together, and they may be seen here for some time to come by any one interested in alpine plants.

Rosa rugosa is again in its glory. One large bush, 5 ft. through, is crowded with buds and has several freshly-opened flowers daily.

Didsbury.

BROCKHURST.

People's Park, Great Grimsby.—At a meeting of the Grimsby Town Council which took place the other day the prize of £50, offered by the corporation for the best design for laying out the new park, was awarded to Messrs. Barron & Son, Elvaston Nurseries, Borrowash. There were twenty-four competitors. The site of the park was presented to the town by Mr. E. Heneage, M.P., and comprises twenty-seven acres. The accepted plans provide for an ornamental lodge at the entrance, cricket ground, bowling green, archery ground, lawn tennis ground, and a piece of ornamental water about two acres in extent.

WHITE-FLOWERED CYTISUS PURPUREUS.

WHEN looking through the collection of trees and shrubs at Grasmere, Byfleet, lately we came across one of the most beautiful little dwarf shrubs we have seen for a long time. It was the pure white flowered variety of *Cytisus purpureus*, a shrub not uncommon in gardens, but rarely seen in its true character, inasmuch as it is generally grafted on a broomstick-like stock a yard or so high; whereas its natural habit of growth is prostrate, the roots being stoloniferous, and sending out shoots in all directions. The elegant growth of this little Broom is well shown in the accompanying illustration, drawn from a spray sent to us by Mr. Stevens. Besides this white kind, there is likewise a variety with rose coloured flowers, named *flore-roseo*, which would seem to be somewhat rare, as one seldom meets with it. There are other named varieties of *C. purpureus*, such as *incarnatus*, *ratibonensis*, *superbus*, and *versicolor*,

but the differences existing amongst these are not very perceptible. The peculiar prostrate habit of the *Cytisus* here represented renders it desirable for many positions for which other shrubs would not be suitable; such, for instance, as a large

out some of the best species in cultivation (*Erodium chrysanthum*, *Haberlea rhodopensis*, *Saxifraga sancta*, &c.), we trust that our endeavours to simplify the cultivation of this most

Flowering spray of the white variety of *Cytisus purpureus*. Drawn in May at Grasmere, Byfleet.

rock garden, in which its long slender branches hanging over the face of the rock would have an extremely pretty effect. Both the type and its varieties seem to like a light, sandy soil, and, being of South European origin, they enjoy as much sun as can be got in our climate. The variety here figured may be readily propagated by means of seeds, as well as by offshoots, which, if layered, root freely. There are numerous other species of *Cytisus* of dwarf growth, but few are worth much attention. Of course the White Broom (*C. albus*) is indispensable, as is likewise the pretty *C. nigricans*, which, however, is not so much known as it deserves to be. *C. elongatus*, *capitatus*, *biflorus*, *nubigenus* are others which we noticed in Mr. Stevens' garden, and are all above the average merit of shrubs of a similar character.

W. G.

FLOWER GARDEN.

ALPINE PLANTS AT ZURICH.

TOWARDS the end of last year there appeared in THE GARDEN a note on alpine plants, which led to a lengthy and interesting discussion, the result of which showed that alpine plants are more and more becoming universal favourites. But while on this point everybody seems to agree, we find a very different state of things with regard to their cultivation. Among the numerous correspondents who have written respecting soils for alpine plants two very different opinions prevail; according to some, alpine plants ought to be grown in soil chemically corresponding with that of the locality from which they come; others believe that situation and a sufficient degree of moisture are the principal conditions upon which their successful cultivation depends. We do not in the least pretend to finally settle this as yet open question, but having been asked to give our opinion, and thinking that the purpose of popularising the love for alpine plants is best served by making known the results of practical experience, we venture to publish our own method of cultivation. Having grown alpine plants for years, and sent

charming group of hardy perennials may be of some use, especially to beginners, who too often are deterred from forming a collection by an exaggerated account of the difficulties to be overcome in establishing alpine plants on a rockery.

Soil.—Every collector of alpine plants knows that some species are almost invariably found on granite, others on calcareous rocks, and a certain number indifferently on rocks of either of the above-named geological formations. We shall have an opportunity of giving further on several instances of exceptions to the rule as regards granite-loving plants, but recognising the fact on the whole as being well established, we have simply to ask: Is it necessary to have any regard to the granite or lime-loving properties of alpine plants under cultivation? If not, what are the principal conditions as regards success? In answering these questions we shall first have to touch upon two points which seem as yet not to have been sufficiently considered. Whoever has had an opportunity of studying tropical vegetation will agree that of all the tropical plants kept in our stoves very few, if any, grow in the same soil as that in which they grew in their own country. The extensive Orders of Ferns, Orchids, Bromeliads, and Aroids furnish many examples of plants growing in a kind of soil very different from the peat which we universally give them. The right temperature and sufficient moisture are the only important conditions we have to fulfil in order to see most of these plants thrive; soil is of secondary or, indeed, of no importance. Among hardy plants we meet with a good many similar instances. Aquatic and bog plants, others from dry, hilly pastures, or shady woods are often grown together in the open border and in ordinary garden soil with remarkable success. A very striking case among hardy plants is afforded by *Iberis saxatilis*, a plant which in Switzerland is found only on jurassic limestone, and yet it can be used as an edging plant in ordinary soil and in the open border. To cultivate a plant in soil entirely different from that which occurs in its native locality is therefore oftener the rule than the exception. Another important point is the possibility of a chemical decomposition of the stones used for building up a rockery. We can very well understand that calcareous or even granitic rocks would, in the course of centuries, be sufficiently affected by atmospheric influence, growth of Lichens, &c., to account for the formation of a thin stratum of calcareous or granitic soil on their surface, but will this explanation hold good if applied to a rockery built up of granite blocks comparatively recently? Alpine plants have not been grown

long in our gardens, and very old rockeries are mostly overrun with anything but true alpine; indeed, most of the best alpine gardens existing at present are of very recent date. If it is, therefore, hardly probable that sufficient lime would have been deposited to form calcareous soil on any of these rockeries, it is altogether out of the question with regard to granite, the weather-resisting qualities of which are well known. The only possibility remaining is to suppose the roots of alpine plants to be able to extract certain chemical matters from the rocks with which they are in contact; we doubt, however, whether the most ardent defender of the granite and lime theory will venture to prove, or even to admit, such a supposition.

Alpines in flat beds.—In describing how we discovered our present way of growing alpine plants, we hope to establish the fact that it was not by mere reasoning, but by practical experience we have been led to abandon the idea of making any difference between granite or lime-loving alpine. The first alpine plants we ever established in our garden were planted in a perfectly flat peat bed situated in a shady corner, where there were no stones or rocks whatever. *Primula cortusoides*, *Androsace Chamaejasme*, *Gentiana plogifolia*, *Silene alpestris*, several *Soldanellas* and *Saxifragas* have grown and increased in this place for years, a fact which clearly corroborates the Rev. H. Ewbank's observations on *Edraianthus*, *Saxifraga Burseriana*, and *Gentians* grown in open beds. As alpine plants began to be collected more extensively our rockeries were built. Quite in accordance with the then prevailing ideas, the first one was made up of limestone, the other of granite, and the plants carefully selected to fit either of these formations. Since we have given up this system, well-known lime-haters are thriving beautifully next to reputed lime-lovers on the same rockery, and *vice versa*. As it very often happens in gardening, our discovery was due to mere chance. A certain number of alpine plants for which no room could be found in our cold frames were turned out into a sand bed, taken out of their pots, and planted there in the autumn to be out of the way. On sending away some of these plants in spring we were surprised to see that they all had made a good many new roots during the winter, some of them forming nice little clumps in the coarse sand. Following up this hint at once, we brought together large quantities of a mixture of sand and loam washed down from the hills by a river near by, and established several raised beds with the material thus obtained. On these beds, which are perfectly flat and contain no rocks whatever, most of our alpine have been growing for some time, and we have every reason to be satisfied with the results. We have thus three different styles of growing alpine plants, viz.: 1st, plants in pots, pans, or wooden boxes; 2nd, plants in open sand or peat beds; 3rd, plants grown on rockeries. In pots or pans we grow all our seedlings, novelties, or rare species which we do not wish to expose to the weather or the chance of being damaged by slugs. It is hardly necessary to add that a good many plants destined for sale are also grown in pots. The soil we mostly use is sandy loam; *Eritrichium nanum*, rare *Gentians*, and many alpine *Primulas* are grown in peat. In well-drained wooden boxes we establish such things as *Gentiana acaulis alba* and *coelestina*, *Polygala Chamæbuxus purpurea*, &c., collected during the summer in the mountains. It is in these boxes that some of the dense little clumps of *Gentians* so much admired by our English correspondents are grown. During winter pots and boxes are kept in cold frames; in summer they are placed on slightly shaded beds made up of sifted coal ashes.

Alpines and sand.—Our open beds are all raised about 6 in. above the ground, and edged with perpendicular slabs of black slate. They are well drained, and either filled with the mixture of loam and sand alluded to or with peaty turf. Most of the plants sent by collectors are first established here, and granite and lime-loving species may be seen growing very peacefully together. The sand of these beds seems to have a wonderful influence upon the formation of new roots. Arriving with no soil adhering to their roots at all, most plants establish themselves in a very short time, and soon form perfect little clumps, which cannot fail to thrive wherever they are transplanted afterwards. Our best specimens of *Gentiana bavarica*, for instance, which have often been admired by our customers, have been raised in these sand beds. *Astragalus adurgens*, which is flowering just now, forms in these beds tufts 1 ft. and more in diameter, and bears from 70 to 80 spikes of flower, the dark purple of the Papilionaceous flowers contrasting beautifully with the bluish tint of the spreading branches. The value of such beds in the case of seedlings coming up spontaneously cannot possibly be overrated. Some of our best plants (*Saponaria lutea*, &c.) have in many cases grown up from seed dropped by imported specimens after all endeavours to raise seedlings in pots or pans had failed. The finest specimen of any alpine plant now in flower in our nursery is a plant of *Iberis petraea*, which sprung up from seed in one of our sand beds; it forms a perfect cushion, measuring 18 in. across, and carrying one snowy mass of white flowers, produced by over 200 spikes. Moisture-loving *Saxifragas* are grown in a sand bed built on an impermeable bottom, and retaining therefore the necessary degree of humidity. *Saxifraga aizoides*, *Androsace*, *bryoides*, *moschata*, *muscioides*, *mutata*, *planifolia*, and *stellaris* are grown with perfect success in this way. In peat beds, either open or placed among *Rhododendrons*, *Kalmias*, *Ericas*, and similar plants, we keep a good many alpine plants, such as *Androsace Laggeri*, *Azalea procumbens*, all the alpine *Aquilegias*, *Atragene alpina*, all large-rooted *Gentians*, *Haberlea rhodopensis* and *Ramondia*, *Swertia perennis*, *Saxifraga oppositifolia*, *Wulfenia carinthiaca*, &c. Near the edging small Ferns, such as *Nothochloa Maranta*, *Woodсия ilvensis*, *Asplenium septentrionale*, &c., grow to perfection; *Edraianthus dalmaticus* forms in such places where the tap-roots can go down in the deep ground, plants measuring 1 ft. and more across, near which a good many seedlings are annually coming up. On our rockeries we cultivate, without, as has been stated, any regard to lime or granite, a certain number of strong plants from among the best species of our collection. The soil used is, with few exceptions, for *Rhododendrons*, &c., sandy loam. There are to be found our fine specimens of *Ramondia pyrenaica* and *pyrenaica alba* (peat) peeping out from the crevices of perpendicular rocks, the first imported plants of *Saxifraga sancta*, *Lithospermum Gastoni*, *Haberlea rhodopensis* (peat), and similar varieties growing side by side with *Acantholimon venustum*, *Daphne Blagayana*, *Rosa theridifolia*, &c. Judicious distribution of the plants as regards situation, good substantial deep soil, and perfect drainage are the only points we consider necessary for success with most alpine plants. If there are some species which have repeatedly baffled the skill of most experienced growers, there are a great many which may be grown to perfection by observing the simple rules we shall indicate. Among the hundreds of kinds in cultivation, every lover of alpine plants may find a selection suited to his taste and means; and if experienced

growers delight in grappling with the difficulties connected with the cultivation of *Saxifraga florulenta* and other exquisite gems of great rarity, we do not see why proprietors of small suburban gardens should not derive equal pleasure from the possession of a small number of the more easily grown, though not less lovely, species.

In collecting alpine plants for cultivation it is of importance carefully to note down all particulars concerning localities, especially as to situation of certain species. It is absolutely necessary to know whether a plant is exposed to full sunshine during the whole day, whether it merely gets the morning or evening sun, or whether it grows wholly on a north aspect. In order to obtain all kinds of situation, the best plan in building a rockery is to let its longest portion run east to west; thus very sunny, as well as partially shaded, situations may be obtained; whereas the north side, if sufficiently elevated, will form a few nooks not reached by the sun at all.

Plants growing near glaciers, at or even above the snow-line, must be differently treated. Although mostly exposed to the full blaze of the sun, they grow in soil constantly kept cool by the melting snow, and are surrounded by the cold bracing atmosphere known as "glacier-luft" by our mountaineers. Placed in the full sun on our hot rockeries, such plants would shrivel up at once; it is therefore necessary to keep down the temperature as much as possible by frequently syringing these plants (especially in the evening or early in the morning) and by careful shading. The best material for this purpose are pieces of light wicker-work placed sufficiently high above the plants to allow the air to pass through. From the middle of June till the middle of August is the critical time for these plants, which but too often actually melt away. To acclimatise and grow successfully plants belonging to the region of eternal snow is one of the most difficult, yet most tempting, tasks an accomplished alpine grower can undertake to solve. A very common error consists in planting alpine plants with the soil of their native locality adhering to the roots. This soil invariably turns sour in a very short time, and often causes the death of a valuable plant, which might have been saved had the roots been brought directly in contact with the soil in which the plant was expected to grow. Plants are found in soils more or less deep, according to the locality, as, for instance, *Viola centisia* often grows in pure gravel; a more plentiful mixture of sand with the soil is advisable in such a case. It is, however, not to be forgotten that the roots, especially of carpet-forming alpine, often go deeply into the subsoil, though covered with stones or gravel. The bottom of every well-constructed rockery ought, therefore, to contain a good quantity of well-drained loamy soil, which the roots may reach through the openings and chinks of the surface and from whence they may get the necessary moisture during the heat of summer.

Slugs and worms.—The most dangerous enemies of alpine plants are slugs, and among these more especially the small ones, which are detected with so much difficulty. Fine specimens of *Achilleas*, *Dianthus*, or *Phyteumas* are often destroyed in one night by these voracious mollusks. Often repeated searches (which ought even to be made at night-time with a light) are the only efficacious means of getting rid of them. In one of the German horticultural papers a correspondent is stated to have caught hundreds of small slugs by burying among his alpine plants a moderately deep saucer filled to the brim with beer, into which the slugs would fall after having intoxicated themselves with the

liquor. We have not tried the plan ourselves, and cannot, therefore, give an opinion as to its efficiency. Common worms do a deal of harm to small alpine plants by undermining the soil and causing the fibrous roots to dry up. By using some precautions in the preparation of the soil, worms can easily be kept out, as the drainage of a well built rockery must make it impossible for them to creep up.

Winter protection.—During winter alpine plants are best protected by heavy snowfalls; hard dry frost without snow causes the death of many delicate species. We use in all cases a covering of Fir branches, which, according to the state of the weather, can easily be put on or off, and they protect the plants tolerably well.

In thus stating our experiences we know perfectly well that we have advanced little new to professional growers or highly skilled amateurs, but we hope to have proved that a good many alpine plants may be grown either in open beds or on rockeries in any garden, a fact which has not as yet been sufficiently brought before the gardening public.

Alpines at home.—The following lists are compiled from the notes of our collector to show that the same plant may be found on rocks of quite a different formation in different localities. Of plants mentioned (GARDEN, Dec. 24, 1881) as growing exclusively on granite our collector found—*Achillea moschata*, on lime (Münsterthal, Grisons); *Androsace obtusifolia*, nice specimens on limestone rocks (Albula); *Anemone vernalis*, in great numbers on lime (Glarus and Albula); *Artemisia mutellina*, old plants and seedlings, together with *Aretia helvetica* and *Edelweiss* on lime (Grisons), on the Bernina group often on granite; *Campanula cenisia*, always on lime, with *Arabis corulea*, *Aretia helvetica*, *Saxifraga oppositifolia* and *stenopetala*, *Valeriana alpina*, and *Viola calcarata* (Grisons); *Gentiana bavarica*, on all the higher Swiss Alps on limestone, whereas *G. bavarica* var. *rotundifolia* as yet only on granite; *Lloydia serotina*, fine specimens on lime (Grisons).

On granite as well as on limestone rocks are found—*Achillea moschata*, on granite (Engadine), on lime (Piz Umbrail); *Ajuga pyramidalis*, *Androsace chamaejasme*, *Anemone alpina* and *subalpina*, *Arabis corulea*, *Arbutus alpina*, *Aster alpinus*, *Azalea procumbens*, on lime (Glarus), on granite (Engadine); *Campanula barbata*, *C. thyrsoidea*, *Draba aizoides*, on lime (Grisons), on granite (Bernina); *Gentiana acaulis*, *G. bavarica*, *G. excisa*, *G. lutea*, *G. punctata*, *G. verna*, *Gemma montanum*, on lime (Glarus), on granite (Wallis); *G. reptans* (Grisons), *Homogyne alpina*, *Hutchinsia alpina*, *Linaria alpina*, *Myosotis alpestris*, *Oxytropis campestris*, *Papaver pyrenaicum*, on lime (Grisons), on granite (Tyrol); *Potentilla grandiflora*, *salisburgensis*, &c., *Primula farinosa*, *P. integrifolia*, on lime (Glarus), in the Grisons mostly on granite; *Ranunculus alpestris*, *Saxifraga aizoides*, *S. androsacea*, *S. muscoides*, *S. oppositifolia*, &c., *Senecio carniolicus*, *Sileps acaulis*, *Soldanella*, several species; *Veronica alpina*, *V. saxatilis*, &c., *Viola calcarata*.
FROEBEL & Co.

Neumünster Nurseries.

Verbascum olympicum.—I have a fine specimen of this now in full bloom. It stands nearly 7 ft. in height, and reminds me of one of those graceful flamboyant spires in Normandy, or that of our own St. Mary's, at Oxford. The seeds, got from Mr. Thompson, of Ipswich, were sown four years ago, but one only of the plants raised from them flowered in the second year, as reported by a neighbour to whom I gave the plant. My own are producing flower-stalks now for the first time, though they have grown luxu-

riantly during the last three years, but never rising many inches from the ground. It is a beautiful tomentose plant, with a profusion of bright yellow blossoms; there is no other of its family that I am acquainted with that can compete with it.—B. S.

DOUBLE PYRETHRUMS.

If any one of our commonly grown hardy perennials may be said to have become improved of late, it is the *Pyrethrum*, both single and double. The varieties of each are numerous, and an inferior flower is now the exception. Take, for instance, the large collection of cut blooms shown by Messrs. Kelway, at South Kensington, on the 23rd ult. One could not help being struck with the size and fulness of the double varieties, their symmetrical appearance, and their varied colours. From pure white, there are many ascending shades up to deep magenta, approaching crimson. Not less varied and bright in colour are the single flowers, and the tints are generally soft and pleasing. There is nothing of the rigid formality of the *Dahlia* in the build of the *Pyrethrum*. It is true that the flowers are full and symmetrical, but there is an outer fringe of guard petal that saves them from being too formal. If any one will examine a flower of a double *Pyrethrum* they will observe that the outer edge is made of a zone or ring of long flat florets, while the centre is filled up with a very large number of short, quilled florets, and the thicker these are developed, the more double is the bloom. The single forms have one or two circular rows of large flat florets, much larger and broader than in the case of the double types, with a showy and striking golden disc. Both types are very pretty, and both have their admirers.

Varieties.—As all nurserymen grow a collection of *Pyrethrum*, there can be no hesitation in giving the names of some of the best varieties. If anyone required a dozen really good flowers of the double varieties, we would advise them to obtain *Andromeda*, rose purple; *Boule de Neige*, white, tinted with rose; *Capt. Boyton*, crimson-scarlet; *Capt. Nares*, bright crimson; *Delicatum*, lilac-peach; *Duchess of Edinburgh*, mauve; *Robert Pasha*, maroon; *Lady Derby*, silvery flesh; *Jeannette*, white; *Michael Buckner*, rose crimson; *Placidia*, peach; and *Sefton*, purple. These are distinct in colour, handsome, and fully double. Now let us take the single flowers, and of these select a dozen varieties as follows: *Abaris*, white; *Bacchus*, purplish-rose; *Calliope*, French white; *Darius*, bright pink; *Fausta*, deep crimson; *Galathée*, large rosy-purple; *Mars*, purple; *Ophion*, vermilion-crimson; *Roscius*, bluish; *Tarsius*, pure white; *Themis*, cerise; and *Veleda*, rosy-lilac.

Culture.—The best time of the year to obtain plants of *Pyrethrum* is spring, because those who propagate them divide them in autumn and pot them, and by spring they have become well rooted. They are then in good condition to plant out in the open ground. In order to grow a collection it is best to plant them in a prepared bed, so that the grower can have the plants altogether and be better able to institute comparisons. The best soil is a free, rich loam, made light and friable by digging, and further enriched by the addition of manure. The *Pyrethrum* strikes its roots freely into the soil, and the better it can do this the more vigorous is the growth and finer the flowers. The *Pyrethrum* is by no means a plant difficult to cultivate, and it is perfectly hardy, passing unharmed through the severest winters if reasonably dry at the roots. It is damp which kills the *Pyrethrum* far more than hard frost. If the plants can be grown permanently in a bed they can be better cultivated; they are greatly helped by some mulching in early summer, by keeping the surface soil stirred in hot, dry weather, by watering freely when necessary, and by giving a good surface-dressing of manure and leaves in autumn, which can be forked into the soil in early spring just as the plants begin to make growth. It is at this season of the year that slugs and snails are hurt-

ful to the plants, as they find lurking places under the old leaves, and eat the young growths if not carefully looked after. *Pyrethrums* are very effective in the mixed border, and some clumps should be dotted about in association with kindred plants, but they cannot be cultivated so successfully as in a prepared and well tended bed.

R. D.

GRAMMANTHES GENTIANOIDES.

AMONG annuals no brighter little gem exists in gardens than this; it is even more beautiful than many mountain flowers so much prized by hardy plant lovers. It belongs to the Houseleek Order (*Crassulaceae*), and is about the only showy



Grammanthes gentianoides.

annual in the family worth growing. It is a dwarf plant, with decumbent stems, reaching only about 3 in. in height, and forming dense rounded masses thickly studded in summer with bright orange-yellow blossoms, divided along the centre by a line of a darker hue which takes the form of the letter V. Altogether it is a charming little plant and one that can be grown to perfection without much trouble. It likes a light sandy soil, and should have the warmest spot in the garden, but in all cases thoroughly well drained, as, being a native of the Cape of Good Hope, it is impatient of excessive moisture. The peculiarity about this little plant is that it expands its flowers only in fine weather and widest in full sunshine. It is a capital little subject for the rock garden, and we have seen it used with excellent effect as an edging for borders. It is easily raised from seeds sown in slight heat early in spring, and the seedlings planted out in early May. Seeds of this little plant will be well worth looking after during the forthcoming seed-gathering season.

W. G.

WILD FLOWERS IN WALES.

THE remarkable quantity of wild flowers to be seen everywhere this season is doubtless due, in a great measure, to the unusually mild winter through which we have passed. Mountain, meadow, and woodland are alike aglow with colour of the most varied kind. In meadows are Buttercups, Orchises, Daisies, and Cardamines. The double form of the latter is certainly a great improvement on the single, and, unlike most double flowering plants, reproduces itself freely from seed. The woodlands are literally carpeted with *Anemones*, *Hyacinths*, and the sweet little *Wood Sorrel*, which loves to creep over some mossy boulder, or where its pretty white flowers are shown off to greater advantage—the hoary stump of some half-decayed tree. Large patches of the common *Wood Anemone* are a sight not to be for-

gotten, but when interspersed with breaks of the pink and blue forms, they present a treat which no one could fail to admire. The Welsh Poppy and Globe flowers enliven the banks of our rivers and water courses, while in neglected spots, in sun or shade, the great Pyrenean Valerian produces its massive pink flower-heads. In damp situations the Marsh Marigold is unusually fine, and clothes with gold both bog and fen, a striking contrast to the modest little *Campanula hederacea*, which delights to grow in similar situations, and covers with its miniature Ivy-like leaves the drier knolls of the marshy ground. The sweet-scented Woodruff and wild Geraniums adorn the hedgerows, while in shady nooks the flowers of the pretty blue Forget-me-not are produced in abundance. The wild Silene has an almost unusual dash of pink in its flowers, and is altogether a conspicuous plant in our woodlands.

In mountain ground the Marsh Orchis, with its variously coloured flowers, Pedicularis, and Pinguicula are abundant, while streams in the same locality are enlivened by flowers of the starry Saxifrage and water Geum. The Daffodil season is past, but if short, it was also sweet. By-the-by, we were shown some time since a border of the double Narcissus which had become single. This was attributed to the poor soil in which the plants were growing, having been for a number of years in the same border. The lovely little creeping Toadflax (*Linaria cymbalaria*) and *Stenoperc* cover with a drapery of the richest green, interspersed with numberless flowers, the damper portions of some crumbling ruin or old wall, while on high, arid banks the wild Thyme finds a congenial home, and forms an excellent and beautiful carpet for taller growing plants. Many more names might be added to this list, but sufficient have already been given to show how fair the face of Nature appears even in "wild Wales."

Penryn. A. D. WEBSTER.

PANSIES IN THE NORTH.

How is it that the farther north the better the Pansies? In Manchester they are finer than in London; in Edinburgh finer than in Manchester. I presume the dripping clouds and semi-leaden skies have a great deal to do with it. Certain it is that in the northern counties of England the Pansy and Viola are the plants of the day. Next to the pleasure derived from the Whitstable show at Manchester was that of seeing so many Pansies in the markets, gardens, and windows of the town and suburbs. Even in the show, Pansies and Violas in pots were wonderfully well done. But the varieties in the market were equally good, and of the numbers for sale there seemed no end. The mode of offering Pansies, and so many other hardy alpine or other herbaceous plants—with the roots and a modicum of soil done up in Moss, so common in Manchester—renders the plants cheap. And plants thus treated, planted out with care, and at once watered home, take to the soil sooner and grow very much faster than those that may have been grown for a long time in pots. Almost all kinds of plants may be purchased in this state, and even collections of herbs, as well as other kitchen garden and bedding plants. This plan of saving the price of pots, as well as the labour of potting, enables many to purchase plants who could not otherwise afford to do so. The trade done in all kinds of hardy plants seems enormous, and would gladden the heart of the editor of THE GARDEN and others who have worked hard to popularise such plants, and render them more common and plentiful in every garden, large and small. Objection is urged against many hardy plants that their season of beauty is so short; but this does not apply to Pansies or Violas in good soil and in favourable sites and climates. It is astonishing how much the first alone will do to render Pansies and Violas perpetual bloomers. I can now cut Pansies from plants that began to flower last October and have been a bit of beauty ever since, even in these arid eastern counties, that are not favourable to the continuous blooming of Pansies. But my plants edged a

new roseroy in which the soil was a yard deep, and were safe from rabbits, soil cracking, &c., that prove so fatal to Pansies. Pansies in pots indoors, especially in the early spring, are simply charming. Neither Chinese Primroses, Cyclamens, nor *Myosotis dissitiflora* can match their brilliancy of colouring, while their fragrance seems a blending of the odours of Valley Lilies, Violets, and Roses.

D. T. FISH.

Androsace lanuginosa is certainly one of the prettiest and most interesting of the Androsaces. It is now in flower at Chiswick, where it is grown in pots in cold pits. These pretty little alpine plants do not thrive for any length of time in the open borders near London, and I find that even when they are grown in pots they suffer much from damp during winter. I tried plants of *A. sarmientosa* planted out and in pots, and found that the losses amongst them were considerable in both ways. In dry rock gardens they would probably succeed much better. They are certainly well worth any care that may be bestowed upon them.—J. D.

Scilla verna.—This Squill I see is omitted by "W. G." in his article on *Scillas* (p. 372). Though small, it is bright and fresh looking, and if "W. G." ever saw an acre of ground covered with its pretty blue flowers, perhaps he would say it was of some use in beautifying the earth. I have a friend who always has a tuft of it growing in his rock garden, and it is his opinion that it is well worthy of the place which it occupies. Why, think of the pretty poetical name the Welsh bards have given it—"Serenyn y Gwanwyn" (the Star of Spring). They at least could appreciate the beautiful! *S. autumnalis*, which is quite as pretty, is also omitted.—E. J., Bangor.

Dianthus neglectus.—"J. C. C." enquires (p. 372), as to the cultivation of this lovely alpine Pink. As regards soil, no one can do better than use good yellow loam and leaf-soil in equal parts, adding about one-third of good sharp sand. Well drain the pots (i.e., if the plants are grown in pots), and pot firmly. If the plants have become loose and straggling, shake them free from soil, collect them into a compact tuft, and repot. In some parts of England, frame culture is almost an essential in its cultivation; while in others, warm, sunny fissures of rock seem to be the proper place for it. At any rate, as "J. C. C." seems to have been so unfortunate in growing this charming plant, I would advise him to obtain a fresh supply of seeds, and when up, to grow the young plants in pots in cold frames till they have become established, when they may be transferred to any permanent position, always avoiding a cold, unless spot. This species, like *D. alpinus*, *D. Fischeri*, *D. gracilis*, and many others, roots readily from cuttings, which should be stripped off with a heel, and inserted in sand under a small hand-heel, or in a pot or pan in a cold frame. When potting, repotting, or planting, be sure to make them firm in their respective positions.—E. JENKINS.

SHORT NOTES—FLOWER.

Allium Octocrocalum.—A very strange and even handsome species, with a head of dull crimson flowers about 2½ in. in diameter. We can imagine cases in which it might, with a free growth, prove a very useful plant.—F. H.

Arnebia Griffithiana.—In speaking of this plant (p. 394) it seems to me that its best quality has escaped notice. It is very sweet scented, so much so, that, like *Mignonne*, it perfumes the air all around it. It has been introduced to Europe by Mr. Anderson-Henry, of Edinburgh.—MAX LEICHTLIN, Baden-Baden.

Silene Hookeri.—The plant referred to by Mr. Wood, of Kirkstall, under the name of *Lychis Hookeri*, is evidently the above, introduced by me to cultivation some ten years since through Dr. Bolander. When only moderately vigorous, it produces not one, but several flowers at the extremity of each shoot, each petal being deeply four-lobed. I am glad to learn it proves hardy in Yorkshire.—W. THOMPSON, Ipswich.

GARDEN FLORA.

PLATE CCCXLI.—IRIS KÄMPFERI.

THE gorgeous *Iris Kämpferi*, roots of which are imported to us now every year, is widely cultivated in Japan—indeed, is one of the most favourite flowers in that land of floriculture. Its characteristics are the large, sometimes immense, outer segments or "falls," spreading horizontally with small inner segments or "standards," and the great variety of colour into which it has sported. There can be no doubt that in point of colour it far surpasses all other Irises; various tints of purple, sometimes so dark as to be almost black, relieved by a central branching blotch of brilliant gold, forms of pure white, and all manner of diversified and intermediate hues fully justify the admiration which its flowers have excited. In point of form it is to my taste often too rigid, and lacks the tender grace of the folds and curves of the commoner bearded kinds; and even its colour is often not pleasing; some of the blotched half-stained varieties which come over to us year by year might with profit to ourselves come to an end in the voyage. Two forms of *Iris* closely allied to this cultivated garden form are found growing wild in Eastern Asia. One is the *I. levigata* of Fischer, growing in Eastern Siberia, Dahuria, Manchuria, and Japan, with a naked stem, inflated spathe-valves, and somewhat broad leaves, with indistinct midrib. The other is *I. Kämpferi* of Siebold, growing in Manchuria, North China, Corea, and Japan, with narrower ribbed leaves and pointed narrow spathe-valves. In both these the flower, though smaller, and uniformly of a purple colour, with a golden blotch, has the same general features as in the garden variety; the latter, in fact, differs chiefly in its varied colouring and more luxuriant growth. Klat describes as *I. violacea* major a form which seems to be identical with *I. levigata* of Fischer, and is said to come from the Caucasus, though this must surely be a mistake, for as far as I know no traces of any *Iris* of this kind has been found in Central or Western Asia. Maximowicz states that when he examined the wild *I. Kämpferi* and the garden form, in their own country and alive, he could not satisfactorily distinguish between them; and Regel found that the seed gathered from an *Iris* growing in North China gave him seedlings identical with the garden forms of *I. Kämpferi*, and, like them, sporting into many varied colours; so that the garden and wild forms of *I. Kämpferi* may be regarded as identical, and the differences between these and *I. levigata* are, at the best, but slight.

One characteristic of the garden form is a tendency to grow double, a tendency happily rare in other Irises. The flowers figured in the plate show this feature; each of them possesses a double whorl of expanded "falls."

In its inflorescence, its mode of growth, its capsule, and even in the form of the flower, *I. Kämpferi* shows its affinities with *I. sibirica*, and their relationship is very strikingly indicated in the larger luxuriant forms of *I. sibirica*, which are now to be seen, and which were illustrated in THE GARDEN, Vol. XX., p. 272. On the other hand, there are many affinities between *I. Kämpferi* and the wide-spread *I. Pseudacorus*, our common yellow Flag, as well as with the North American *I. virginica* and the Asian *I. setosa*. All these are members of one group, gradually separating away from each other. I believe that they would be found to hybridise, and that the result would go far to overcome the difficulties of cultivation which beset *I. Kämpferi*, for there can be no doubt that this beautiful flower is difficult to cultivate with certainty. It is true that we find it again and again growing magni-



IRIS KAMDEERI VARS

ciently where no especial care has been bestowed upon it; but it is equally true that the masses of roots which are now annually imported into this country often live not only a short, but an unsatisfactory life. One thing seems clear: the plant needs, in the summer at least, abundance of water at its roots and plenty of sunshine overhead. The Japanese grow it in ponds and running streams, and in many Japanese illustrations you may recognise I. Kämpferi growing like Bullrushes right out of the water, with little plank bridges leading up to them, so that the owner may tend them, and enjoy their beauty from afar. But what I do not feel so sure about is, whether in Japan the plants get the same amount of water in winter that they do in summer. Perhaps Mr. Maries could tell us about this. I have a kind of fancy that our miserable wet winters are their greatest enemies. Certain it is that they may be grown without water, for Dr. Regel flowered his seedlings in an ordinary garden border. Some time ago M. Max Leichtlin strongly recommended peat as the proper soil for them, but I am inclined to think that the value of the peat lies mostly in its affording a soil which will readily hold moisture; and when the water difficulty is overcome, I fancy they will be found to flourish best in good, rich river mud and silt.

One thing I feel pretty sure of, and that is, that they hate being divided; and the exigencies of the nurseryman is, I believe, the cause of much of the mortality. The imported roots often flower well the first year out of the stores laid up in the roots under the sunny skies of Japan, and that in spite of the imported clumps being divided on arrival. This first flowering gives rise to many hopes and to great activity in the invention of new names. But, after flowering, the roots are divided once more in order to propagate the stock, and the next summer, to the grief of the owner and the vexation of the purchaser, sees them crumble back into mould.

I quite agree with Regel that the best way to get these (and many other) difficult forms established in our trying country is not to import large roots, but to raise seedlings with seed carefully selected from the strongest and handsomest forms. F.

GARDEN DESIGN.

Too many and too large walks.—We observe with some regret that the walks in the parks while becoming more numerous every day are also in some places much too wide and conspicuous. Some of the finest bits of turf in the Green Park have of late years been cut up by bold, hard walks. If this goes on in proportion to the desire of people for short cuts, we shall soon have a time when each park will be like a gridiron with walks, and many of them needless walks. Sometimes these ugly walks are made because of pathways being made in the direction of the future walk; but that is not a good reason for spoiling a park. The right way would be to lay down certain essential lines of walk and adhere to them, placing the walks where they would do least harm and allow of the largest expanse of verdure. People often walk on the green part in hot weather for the sake of comfort, and the existence of a pathway in a given direction does not always imply that a large walk is wanted there. It would be often better to allow the public to beat a path than to give way and make one of those iron-bound walks. As regards their width there are certain places where they are needlessly wide and staring. They seem to be made by persons who wished to make roads of them. It is well, where numbers of people congregate, to have spacious walks; but in the majority of cases a six-foot walk only is required. The greatest mistake of all is letting two walks be

near each other, cutting up the place. Parks are not made for short cuts, and there can be no hardship in having to make a little detour to get from one point to the other, if, by doing so, the beauty of the park is maintained or improved. Much recent work in the London parks has been harmful in these respects.—*Field*.

ROSE GARDEN.

MILDEW ON ROSES.

WHAT are the primary causes of mildew on house roses? Can this matter be satisfactorily solved so that we may not constantly have to fall back upon a remedy, but be enabled to find a cure by disestablishing the cause? Common report ascribes mildew to cold draughts of air playing upon the young tender foliage, to excessive drought at the roots, or to excessive moisture, and also to a raw, damp atmosphere. Now I have found mildew more than usually troublesome in a span-roofed Rose house this season, although the fungus affects only certain kinds. Thus, *Maréchal Niel*, *Mdme. Berard*, *Catherine Mermet*, and *Souvenir de Paul Neron* are much affected; whilst *Homère*, *Marie Guillot*, and *Lamarque* are quite free from it. There has been no special exposure to draughts; the air, owing to the impossibility of giving top ventilation, has been at times rather warm than otherwise; and though the season has been a dry one, the roots have not suffered from want of moisture. Of course, excessive moisture at the roots and a damp atmosphere are quite beside the question this year. Then I note that on a south wall close by, where the soil has been, I might say, almost excessively dry, the Roses have done well, bloomed freely and vigorously, and are as free as can be from mildew. The sorts there are *Niphetos* and *Safrano*. That example should settle the point as to the influence of drought at the roots in producing mildew. I have, therefore, but one theory to fall back upon, and it is one that may be correct or otherwise, just as it is found to be general or otherwise in its application. All the Roses most affected with mildew are grown on the east side of the house. We have had extending over a considerable time frequent keen north-east winds, some of several days' duration, the latest one especially having proved to be of great force. These winds, striking upon the eastern side of the span-roofed house, have found ready access through innumerable glass laps, and thus broken up have formed in each case a keen, incisive current, rendered all the keener and colder by the peculiar method of ingress. I think it is these keen currents of cold air playing upon the tender foliage (specially tender on account of being the first growth after taking off of the spring flower crop) which has promoted curl and mildew so largely. If this be the case, it would furnish a strong argument in favour of warm aspects for Rose houses, or of such glazing as shall exclude the air on the colder sides altogether. I should like to learn what Mr. Fish, who knows so much about Roses, has to say on this subject, and upon the best methods of coping with mildew on Roses generally, whether in or out of doors. A. D.

A DOZEN ROSES FOR A GREENHOUSE.

I SHOULD prefer half-a-dozen as follows: 1, *Maréchal Niel*; 2, *Niphetos*; 3, *President* or *Adam*; 4, *Devoniensis*; 5, *Lamarque* or *Smith's Yellow*; 6, *Solfaterre*. To these may be added—7, *Gloire de Dijon*; 8, *Isabella Sprunt*; 9, *Mdme. Bravy*; 10, *Mdme. Willermoz*; 11, *Souvenir d'Elise*; and 12, *Souvenir d'un Ami*. The first reigns without a rival among the golds. The second is the finest white Rose under glass, with occasionally an outer surface of a petal suffused with the most delicate pink. The third is nearly always in flower, and under glass is probably the finest and most floriferous pink Rose in existence. The fourth has no rival where it thrives, the common being far superior under glass to the climbing, which is apt to climb at such a rate as to forget to bloom. *Lamarque* is a true Perpetual

under glass, and the buds are exquisite, though the fully expanded flowers are as useless as those of *Souvenir de la Malmaison* for decorative purposes. The sixth is a soft sulphur yellow, very chaste and exquisite in a half-opened state. *Smith's Yellow* is a much longer and thinner bud, but remarkably fine under glass and extremely useful. It is more like a true yellow China than any other Rose, and is not so generally grown as its merits deserve. *Gloire de Dijon* it can only be said that glass reflects both bud and flower, and that it flowers as persistently under glass as in the open, and, having no frost to check it, it is always in bloom. No. 8 is useful in bud, and an amazingly free bloomer. *Madame Bravy* is a beautiful cream-coloured Rose with a blush in its eye, and does better under glass than in the open air. No. 10 is of similar character, but has whiter petals with a salmon centre. No. 11 is another gem of the same general strain, and an exquisite Rose; while *Souvenir d'un Ami* is as fine as *Adam* or *President*, but a more decided rose self and equally large and fine. No doubt many will miss favourites in this list, but these Roses do well under glass, while not a few of the finer *Teas* and *Noisettes* thrive very indifferently and almost refuse to bloom under such conditions.—D. T. FISH.

—Of *Teas* and *Noisettes* for training along the wires of a span-roofed greenhouse I would suggest *Pelle Lyonnaise*, *Cheshunt Hybrid*, *Climbing Devoniensis*, *Emilie Dupuy*, *Fortune's Yellow*, *Gloire de Dijon*, *Lamarque*, *Madame Berard*, *Madame Marie Berton*, *Maréchal Niel*, *Rêve d'Or*, and *Solfaterre*.—S. R. H.

—The following *Tea* and *Noisette* Roses are suitable for a span-roofed house, viz., *Maréchal Niel*, *Gloire de Dijon*, *Lamarque*, *Niphetos*, *Catherine Mermet*, *Cheshunt Hybrid* (H. T.), *Climbing Devoniensis*, *Perle des Jardins*, *Reine Marie Henriette*, *Celine Forestier*, *Madame de St. Joseph*, and *Safrano*.—W. H. F., *Beeston*.

Rose Isabella Gray.—It seems about as natural for this Rose to come green, or deformed, or to refuse to open its buds as for the old double yellow Rose to do the same. The only means by which I ever succeeded in flowering *Isabella Gray* was to grow the plants in pots in a mild bottom-heat. The flowers opened well under this treatment, and most of them were of good form. But there is little hope of it in a greenhouse, and I would advise "W.P." either to bud it with *Maréchal Niel*, *Smith's Yellow*, or *Solfaterre* if he wants yellow Roses, or with *President* or *Niphetos* if pink or white. *Isabella Gray* in ninety-nine cases out of a hundred is not worth growing.—D. T. FISH.

The best Roses.—In putting a question to Canon Hole the other day as to Roses equal to *Gloire de Dijon* he writes as follows: "The question with me is not, as with you, 'are there six Roses worthy to rank with *Gloire de Dijon*?' but 'is *Gloire de Dijon* worthy to rank with the first six Roses?' For hardihood, for the abundance of its beautiful blooms, for foliage, it is of all Rose trees now in cultivation the most desirable, but for perfection of form and colour there are many Roses which we rosarians regard as superior. I like your idea of a gallery of illustrations of Roses, and it would be very interesting now and hereafter, but I should not give *Gloire de Dijon* the precedence. I believe *Charles LeFebvre* in its integrity to be still the king of the Roses, and this might be followed by *La France*, *Maréchal Niel*, *Marie Baumann*, *Catherine Mermet*, &c. Very few are lovers at present of the glorious beauty of the *Tea*-scented Rose as grown, for example, in the Rose houses of the Duke of Westminster. I should like to go with you to some of our Rose nurseries in the season and your artist with us."

The most richly scented Rose.—Mr. George Paul's note (p. 381) is rather tantalizing. He says, in sending some Roses for the editor's table, "There is also a flower enclosed of the most perpetual Rose we have, *Stanwell Perpetual*, one also of the most richly scented." Does the last clause mean another Rose? and if so, which? or does it mean that the *Stanwell Perpetual* is the most richly scented?—D. T. FISH.

MARKET GARDENS.

The recent rains have proved to be most advantageous to market garden crops of all kinds, especially those in open fields, because these promise this year the best returns, and, indeed, should other rains fall from time to time as they are needed, all field crops can hardly be other than profitable. The chief want this year is top fruits. Of these it is feared that we shall presently have to report an almost entire failure. This is bad news at any time, but specially so now, for though the top crops were fair last year, yet it is a fact that we have not had a good crop of upper fruits for several years, and the pinch will be a severe one. The mischief began with the terrific April gale, and although the salt-water theory is not worth a moment's consideration in the matter, there can be no doubt that the friction wrought by the wind amongst bloom and fruit germs was as destructive as it was amongst the foliage, for the fruit of Apples, Pears, Plums, and Cherries over large orchards has largely disappeared, and behind has been left an unusual visitation of aphids, which has done much harm to the early growth. The recent heavy rains, though too late to prevent a great amount of mischief, have at least given the trees a good washing, and will specially assist in the promotion of new, though late, growth that will be healthy.

Under fruits.—Strawberries promise to be the under crop of the season. A moist autumn, a mild winter, and a spring that, though boisterous, has not been marked by sharp late frosts, have unitedly helped to give the plants vigour and a heavy bloom. I saw a few days since a vast breadth of some 20 acres of Strawberries that were literally a sheet of bloom, although somewhat getting over. Long litter was being got amongst the rows to keep the fruit clean, and even such useful work as that is not a light labour. Probably it should have been done much earlier, but then it is not always possible to secure the required amount of litter till the season has somewhat advanced. Gooseberries, per se, will stand next to Strawberries as a good crop, though these are not universally plentiful, still they are the bush fruit crop of the season. One grower said on Whit Monday, "I have sold £100 worth, and now have as good a crop as last year." He finds his reward for good culture in an abundant crop. I think I may assert that he has the cleanest and best cultured breadth of Gooseberries (chiefly Lancashire Lads) to be found in Middlesex. Black Currants stand next, but these will not produce the crop the splendid bloom promised. Probably it will not be more than one-half the quantity expected, but then the berries will be very fine, and because fine will be juicy and rich-flavoured. Small Currants are of little value or service to any one. Popular taste runs largely in favour of the Black Currant as a preserve fruit, but green Gooseberries are a long way to be preferred, not merely because the preserve will keep better, but it is pleasanter eating. Intending preservers will do well this year to rely chiefly upon the under fruits wherewith to fill their jam pots, and of all none will prove more serviceable and perhaps cheaper than green Gooseberries. Red Currants will be a moderate crop, but Raspberries promise to be abundant. Except ripe Gooseberries and Strawberries, tender fruits help the dessert but little, but for the kitchen, whether for tarts or for the preserving pan, they are unrivalled. From the trade grower's point of view, under fruits are of far more importance than are other fruit crops, not only because they invariably market well, but because as a rule they are reliable. For one failure in these there are five failures in top fruits. Still, it would be unwise to plant bush fruits only. Large tree fruits root deeper, and do not in that respect affect the bushes; whilst, on the other hand, they furnish useful protection from keen winds and frosts. Relatively the cost of adding standard trees to fruit orchards is not great when maidens or two-year-old trees are planted, and if the crops produced now are few and far between,

they probably pay for the first cost of planting and what labour is expended on the trees; whilst the protection they render to the bush and under fruit is of great value.

Vegetable crops.—The earliest gatherings of Peas from field crops were marketed about the 1st of the month—not an unusually early date, although the spring was an open one. Peas generally look remarkably well, and the crop should be not only a heavy one, but should be so cheap as to be brought within the reach of all consumers. How profitable Peas are is evidenced by the fact that growers, even if now and then a bad season comes, have so much faith in the result as to sow as largely as ever the following year. Starting at about 10s. per bushel, and the sample none too full, the prices drop in a week to 6s.; and then soon come down to 4s. and lower, although 6d. per bushel is still paid for gathering, and it costs just as much to get the cheap bushel to market as it does the dear one. The damage done to Peas by the wind last April has not proved to be so severe as was anticipated, and to no inconsiderable extent the plants have grown out of it. Generally I have never seen the breadths of Peas looking better than now. Growers still favour Sangster's No. 1, but probably William I. will entirely supersede it in a few years. It is quite a matter of price and hardness. Day's Sunrise bids fair to make a good field Pea also. The largest quantity of any kind sown is of Harrison's Glory, a dwarf Pea of indifferent quality, but it is so hardy and so certain, that few care to dispense with it. Runner Beans have come very well and promise a good plant. Those got out at 4 ft. apart and filled in with Brussels Sprouts, if on good land give two of the best paying crops. Where made to follow upon a piece of early Tares the change is good, whilst the fibre of the Tare stems affords excellent nutriment for the vegetable crops. All kinds of winter plants are being got out now as fast as possible, but the Potatoes are somewhat late, the growth having been checked by drought and cold nights. Till the rows are earthed it is difficult to fill up with plants, and even then, though the rule seems almost always adhered to, the result is seldom good, the plants suffering so much not only from being choked by the Potatoes, but also by the damage done when the Potatoes are lifted. It is almost wiser to get the first crops of Peas and Potatoes clean off before putting in another crop. Of such choice crops as early Cauliflowers, Lettuces, Asparagus, Seakale, and Celery, few are grown in the more outlying market gardens of Middlesex. Driven out from Fulham and more truly town localities, the best crops of this kind are found about Putney, Barnes, and Kew, where the soil is deep and naturally rich and holding. The area in the country suitable for these crops is fast becoming limited.

A. D.

EDGING PLANTS.

In cases where walks or drives intersect fields or parks the greensward on either side generally forms a sufficient edging, but in all well-kept gardens something in the form of line of demarcation is necessary to divide or to separate soil from gravel. No plant is more generally used for edging than the

Dwarf Dutch Box, and possibly no plant is better suited to the purpose. In some light, poor soils, however, it does not succeed well, and even in soils where it does succeed it requires considerable attention in the way of clipping, in order to keep it in proper form, as if this is not attended to it will soon become unsightly, as well as unserviceable as an edging plant. The operation of laying, as it is termed, a Box edging is one which, if performed as it ought to be, requires a neat-handed workman; and in order to have the edging properly laid it is necessary that the soil should be made level and solid. The clipping of an established Box edging should be performed at least once a year, and the best time to do this is during the latter part of May or early in June, when all danger from frost may be supposed to have passed, for although Box is perfectly hardy when in an

unmutilated condition, still, when recently clipped, a comparatively slight frost will not kill it, but will disfigure it for the remainder of the season. If a second clipping should be deemed necessary, it should for the same reason be done sufficiently early in the autumn to avoid injury from a like cause. As has already been said, there is possibly no plant better suited for the purpose of forming edgings to walks in vegetable gardens than the Box. It requires, however, to be properly cared for. It is impatient of being trodden upon or roughly treated in the sweeping or cleaning up of the walks to which it forms a margin, and if so treated unsightly gaps will soon be the result. The plants, when neglected or allowed to grow too high, are also very likely to become thin at the bottom, and the soil from the borders or quarters is washed through the edging during heavy rain-falls upon the gravel, which it discolours. On this account an edging should always, if possible, be placed somewhat high, in order that the soil should fall slightly from it instead of sloping to it, as is more frequently the case. Some, however, are found to greatly prefer

Dead edgings to living ones, particularly in kitchen gardens, the former having certainly the advantage of affording no harbour for insect pests of any kind, and is less likely to get injured. Such edgings are sometimes formed of wood, which cannot, however, be highly recommended for the purpose, as it seldom remains in good condition for any length of time, and it is possible that even an edging formed of flints, or comparatively small stones, is to be preferred to it; but a neat tile is very much to be preferred to either. We would, however, give preference to a combination of a living and a dead edging, and thus far as possible endeavour to meet aesthetic as well as utilitarian requirements. We would in every case use a tile in the first place; it need not be thicker than is consistent with the necessary strength, and should stand some 3 in., more or less, above the level of the walk which it borders. Behind the tile, and as close to it as possible, should be inserted the plants intended to form the edging, with their roots extending into the border, and prevented by the tile from entering the gravel forming the walk. The advantages of this arrangement will be obvious in more ways than one. The tile will, to some extent, protect the living plants from injury during the sweeping and cleaning of the walk; it will also prevent the soil, during dry weather, from filtering through the edging on to the gravel, and will prevent it being washed through during heavy rainfall, and be of the greatest value in cases where it is found necessary to give walks a heavy dressing of salt. The latter is frequently found to be very beneficial to them; for, although walks may be kept free from weeds by the hand, or by occasionally being broken up, still it frequently happens that they become covered with Moss, &c. When it is by no means convenient to break them up, and where a good dressing of salt would be quite effectual in consolidating and rendering them perfectly clean, and free from weeds as well as moss and earthworms, such dressings can, however, hardly be applied with safety to walks which are margined with living plants planted in the ordinary way; for although the greatest care may be taken in keeping the salt at what may be considered a safe distance from the roots of the plants, still, a sudden and heavy fall of rain will wash the greater portion of it to the sides and into direct contact with the roots, and this will generally greatly injure, if it does not altogether kill them. The use of a tile will prevent anything like this taking place. Even ordinary bricks may be effectively used for this purpose, or, better still, the kind of bricks called by bricklayers "skews," but a light tile is in all respects better than either, being much neater and no doubt cheaper. If desired, the common Box may be used in connection with the tile in the manner described, but there are also several other plants which may, with equal success, be used for the purpose, as of which will now be named, such as the *Buxus*

japonica aurea, an exceedingly pretty variety of the Box family, and one of the most suitable for an edging plant, as the closer it is clipped, the brighter its golden colour becomes.

Variousedding plants.—Some of the many dwarf forms of the Retinosporas are exceedingly pretty when used as edging plants, and they bear clipping as well as the Box, as does also the *Euonymus radicans variegatus*; and the *Vinca variegata* is possibly one of the most beautiful of all marginal or edging plants. The common Irish Ivy and some of the variegated varieties are also very suitable for the purpose, as is the small-leaved *Cotoneaster*, the *Santolina incana*, or *Lavender Cotton*, the *Golden Thyme*, *Veronica candida*, and *Saxifraga umbrosa*, or *London Pride*. Some of the *Gnaphalium* and *Cerastium*, *Stachys lanata*, *Armeria maritima*, or the *Thrift*, are likewise suitable, as are also the many beautiful varieties of the *Daisy*, the *Sempervivum californicum*, &c., and where the soil suits it, the beautiful *Gentiana acaulis*. P. G.

KITCHEN GARDEN.

EARLY MUNICH TURNIP.

WE are now using, and have been for the past fortnight, this exceedingly useful Turnip, the produce of seed sown on a west border on March 9. It forms a very serviceable dish, and now when old Turnips are useless except for flavouring, it is much appreciated. I would advise growers who are fond of Turnips to sow



Early Munich Turnip.

this for their first crop, and then follow with Early Snowball, which I consider one of the best for summer use. The Munich scarcely ever fails to give an extra, early, and good crop; at least such is my experience, and I have grown it for my earliest crop with the result stated. I find it to be a good and safe plan to coat with red lead the seed for my first crops. Turnips, Brussels Sprouts, Cabbages, Cauliflowers, and, in fact, all small seeds thus treated are less disturbed by vermin than when sown in the usual way.

Brynkinalt.

J. CLARKE.

INDIAN CORN FOR GREEN PEAS.

NATIVES of the American continent, where the climate admits of Maize being grown to perfection, speak always in high terms of this crop, for, like the oatmeal of Scotland, it enters largely into the American household economy; but it is not the produce of the farm that I have here to deal with, but of the garden plot, and with one variety only, and that decidedly belongs to the garden and not to the farm. The early dwarf Indian Corn that is referred to here is called "Keen's Forty-day Maize." In cultivating this plant it is necessary to observe well the time of sowing, and to be watchful when the plant is germinating, for jackdaws will come for miles at an early hour in the morning to get the sprouted Maize. I had to shoot one to warn the rest, which it did most effectually, for none came after the dead bird was hung up to view. When the May bug begins to come forth, the earth will be sufficiently warmed by the sun to start the Maize. This seed-time has to be kept rigorously, for, like any other bedding plant of exotic character, this has to be started in the nick

of time. It does not succeed so well when sown in pots and planted out; and yet the variegated-leaved Maize of our gardens grows freely after being forwarded in 2½-in. pots and planted out. It is of the easiest culture, requiring deep rich soil, and in case of hot weather setting in water will be needed, and a taste of manure water will be beneficial. It is one of the boldest herbaceous plants we grow, and gives the cottage an ornamental look, besides being serviceable in the kitchen. Keen's Maize is a dwarf variety, seldom rising more than 3 ft. or 4 ft. The plants need not be planted nearer than 2 ft. by 3 ft.; and if the ground be well sheltered they will not require stakes or props. I would strongly advise a trial in sheltered gardens, but the right sort to grow is everything, for the miller's Maize is for the field, but the gardener's Corn, when cooked green like young Peas, is a luxury for the table.—ALEX. FORSYTH, in *Florist*.

SUMMER MANAGEMENT OF ASPARAGUS.

SEED-BEARING tends to weaken the plants, but picking the seeds off is a long job which few can spare the time to do. If the seeds, however, cannot be picked off before they get large in summer the young seedlings which I see springing up on the surface of the beds in many gardens which I visit (the result of allowing the plants to seed) should be destroyed. Letting them grow on unnoticed is the way by which such a thicket of weakly Asparagus is produced on the narrow old-fashioned beds. The young self-sown plants will transplant now with ease and certainty, and if watered and mulched will make good growth the first year. Asparagus succeeds best on light soils; indeed, I know some heavy clay soils in which the plant refuses to grow no matter what may be done with it. Yet it is a moisture-loving plant, and where the site of the plantation is well drained artificial irrigation will pay. No one should plant above the surface unless in the coldest and latest districts. The quantity and quality of the produce may be much increased and improved by planting in trenches and arranging the machinery for flooding them occasionally during sharp spells of dry weather. It is most important to do this after cutting has ceased in summer in order to obtain strong growths to form a basis for next year's thick succulent stems. Salt is beneficial as a top-dressing on dry porous soils, perhaps less on account of its manurial value than from its retentive character. Many people continue cutting far too long, while in this, as in all other cases, covetousness meets its reward. The beds must be very strong and productive that will bear cutting after June in any climate, and some pains should be taken to prevent the large strong stems from being blown over when the plants are left to themselves. A few stakes and a strand of tar twine stretched along the rows will suffice, as only the longest and strongest will require support. E. H.

CORN SALAD.

IN countries where a supply of green vegetables is not obtainable from the open ground in winter, Corn salad is highly valued; in Germany especially this little plant is much esteemed, as there, with the exception of Dandelion, salted Cabbage, and Beans, it is all the working man can get in the way of green food from December until the first crops of Spinach and Lettuce are ready in spring. Even in England, where we are more favoured in these respects, we ought to think much of this esculent, as, except Dandelion, the flavour of which is not agreeable to everyone, it is the only salad which can be relied on to pass the winter uninjured in the open air, and it does not lie in the power of all to make sufficient provision for a supply of Endive or of Lettuces under glass at that time of the year.

SOWING THE SEED.—Corn Salad may be sown from February until June for late spring

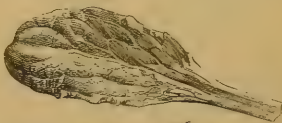
and summer eating. The soil should be well enriched, free and sweet, and the seed should be sown in drills 9 in. apart, thinning out the plants to 4 in. asunder in the rows. For the first sowings a sunny border should be chosen, but later almost any situation will do, even partial



Green Corn Salad of Etampes.

shade not being a drawback. For winter use two sowings should be made, one in August, not later than the middle of the month, the other in the first week in September. For these late crops it is not advisable to make the soil very rich, but a dressing of soot, given when the plants are thinned out, will do good in more ways than one. In the Vine growing districts of Germany Corn Salad is sown as a winter crop amongst the Vines, and it is said that it acquires a better flavour there, on the sunny slopes late in the year, than in gardens. In any case I would recommend a sunny situation to be selected for the last sowing, and if on a light soil so much the better.

VARIETIES.—A considerable number of varieties, differing more or less from the type, are now cultivated in French gardens, although up to the present market gardeners confine themselves principally to the Régents, a large-leaved good flavoured form, apparently identical with the New Italian of English seed catalogues, and the Round-leaved, a compact habited, very hardy kind. The first named is a strong-growing variety, generally popular throughout the north of France, where it has superseded the primitive form, whilst the Round-leaved is now much in favour with Parisian market



Régente Corn Salad.

gardeners. Another variety now coming into use is the Verte d'Etampes (green Etampes). This has dark green leaves, strongly veined, and forms compact tufts much in the way of the last named; both have the merit of keeping in good condition for some time after gathering, a fact

which should recommend them to market growers. Other kinds consist of Lettuce-leaved Italian, a variety of the Régente, with large, pale green leaves and a spreading habit; Large-seeded, a stronger form of the type, to which it is very apt to return; and Hearted-green, a sort with a dwarf compact habit, merely a form of the green Chevreuse. Some of the above varieties are very constant, others not so much so; therefore, in their case seed should only be saved from plants in which the true character is most prominently developed.

BYFLEET.

INDOOR GARDEN.

BILLBERGIAS.

ALTHOUGH the plant, of which the annexed is an illustration, is generally known as a *Quesnelia*, it is not considered by Mr. Baker—our greatest authority on Bromeliaceous plants—to be generically distinct from *Billbergia*. Horticulturally the *Billbergias* may be reckoned as the most ornamental genus in the Pine-apple family, though many of the *Pitcairneas* and some *Tillandsias* deserve to rank among the first in this respect. Recently, both in *THE GARDEN* and elsewhere, much has been written in commendation of Bromeliads, and there can be no doubt that they have only to become better known to be properly appreciated. It is interesting to note the popularity which these plants have attained in Continental gardens, a fact abundantly shown both by nurserymen's catalogues and the illustrated magazines from abroad, in both of which Bromeliads figure as prominently as Orchids do with us. Many French and Belgian horticulturists devote the greater portion of their houses to the cultivation of these beautiful plants, especially to *Billbergias*, a class of plants characterised by striking and often handsome foliage and richly coloured flowers. Among these the kinds most worthy of attention are:

B. roseo-marginata.—A comparatively new species described and figured for the first time in the *Revue Horticole* for 1880. It belongs to that section which from the centre of the plant produces a stiff erect inflorescence, as in the case of the Pine-apple. The foliage, which is sheathing at the base, is about 27 in. long, channelled, spiny on the margin, and marked with horizontal bands of a greyish colour. The flowers are borne on a rather thick stem, clothed with stem leaves or bracts of a brownish colour below, while those surrounding the flowers are scarlet margined with white, through which the long pale flowers with deep blue tips show themselves and have a pretty effect. The accompanying figure shows correctly the habit of the plant, but, as a matter of course, fails to convey a correct idea of the ornamental character of the inflorescence.

B. rufa is another erect-flowered species possessing the same habit as the above, but differing from it in having leaves more acuminate and deep green in colour. The whole of the bracts on the inflorescence are flesh coloured, the upper ones being variegated with white, which contrasts very prettily with the deep purple of the flowers.

B. zebrina is a very ornamental foliaged plant, and also a very handsome flowered species. Its leaves are closely sheathing for about half their length, so as to form a sort of tube; they are deep green, with zones of grey, the whole deepening with age. Instead of being erect, the inflorescence in this instance curves gracefully downwards. The flower-stalk is clothed with large, pale salmon-coloured bracts, the flowers being verdigris green.

B. vittata resembles the last as regards character of foliage and curving flower-stalk, but the bracts are bright orange-red, as is also the tube of the flower, the reflexed portion being purplish blue, through which the pale green stamens protrude about $\frac{1}{4}$ in. This is a tall-growing species and very ornamental.

B. Morelli, both in height and floral grandeur, is quite as noble a plant as the beautiful *Canna Ehemanni*. The large, boat-shaped bracts, 4 in. long and 2 in. wide, which clothe the long, drooping flower-stalk, are of the richest scarlet, a colour which forms a pleasing contrast with the pale green and purple of the flowers. It is, in short, almost impossible to speak too highly of this species as a fine foliaged and flowering stove plant.

B. Porteana and **B. Bakeri** (syn., *B. pallescens*) belong to the same group as the last; both of them possess characters of great beauty and singularity.

B. bicolor is a very remarkable species, with narrow foliage, so arranged as to look like the end of a branch of some *Pinus*; while the scarlet centre, with its white, cone-like inflorescence, adds still further to the resemblance. Other species, such as *B. Euphemia*, *B. iridifolia*, *B. Liboniana*, *B. thyrsoidea*, *B. nutans*, &c., also deserve mention on account of the beauty and richness of their flowers; in fact, it would be difficult to name any

being beautifully and distinctly marked, and the plant itself grows so freely, as to quickly cover any reasonable amount of allotted space. For covering a back wall of a greenhouse, for clothing pillars, and training up the rafters of lofty conservatories this plant has few equals, and it is also valuable as a basket plant.—J. CORNHILL.

CHRYSA nthemums FOR EXHIBITION.

SOME time ago Mr. Douglas wrote an article in *THE GARDEN* on growing *Chrysanthemums* for exhibition in which he did not give any directions as to stopping the plants. I have followed his directions up to this time, and have lately potted my plants. I stopped them once when about 6 in. high, and I want to know whether I must stop the main three shoots of each plant any more. I have stopped a few as they formed flower buds.—J. C. T.

—Our plants intended to produce large cut blooms have lately been potted, but that operation might be performed at any time not later than the end of May, "J. C. T.," who has stopped his



Billbergia (Quesnelia) roseo-marginata

species of this genus whose claims on the cultivator are not worthy of consideration.

The cultivation of *Billbergias* is so very simple as to be within the means of anyone possessing a stove. A moist atmosphere and plenty of sunlight suit them exactly, while, as regards soil, a mixture of peat and loam, or peat and leaf-mould, with a little sand, is all they require. These are the conditions under which they grow naturally, and experience has taught me that such, and not the dry, parching treatment sometimes given, are most likely to bring out the true characters of these and of other Bromeliads.

B.

Cobaea scandens variegata.—The variegation of some plants is either sickly, inconstant, or so ill-defined as to render them a source of disappointment rather than of pleasure. In many cases, too, the natural growth of the plant is weakly, a fact easily comprehended, seeing that the white portion of the leaf is devoid of chlorophyll or colouring matter, and can, therefore, exercise but little influence upon the production of roots. The variegated *Cobaea* is, however, in every way a satisfactory plant to grow, each leaf

plants once, should not stop them again if his object is to produce large blooms for cutting to exhibit in stands. The three main shoots on each plant must be fastened to a stout stick, and if each plant produces three or four good exhibition blooms, that is as much as should be expected from it. Our plan is to pot one plant in an 8-in. or 9-in. pot, two in an 11-in. one, and three in a 13-in. one. Your correspondent would do well to try some of his plants without stopping at all, and about the end of August or early in September is the best time to select the buds. The plants must be looked over daily at that time, and the very tiny flower-buds, that are to grow into large, symmetrical blooms, will be found with about three growths starting immediately underneath them. The sooner these are removed the better, otherwise if they start into growth, the buds will not develop into a flower at all. The side buds underneath the main buds must all be removed.

If it is intended to grow large specimen plants for exhibition, it is necessary to start in November or early in December. Some varieties, as, for instance, those of the Mrs. G. Rundle type or *Empress of India*, will form large handsome specimens from cuttings put in at that time, but a

large proportion of them should be grown from old plants, and the best for that purpose are those that have been grown the previous year to produce out blooms. It is expected at the exhibitions that the plants should be single-stemmed ones, and that the stem should be seen distinctly above the mould on the day of exhibition. If the plants from which the large blooms have been cut are examined, it will be found that some of them have young shoots starting from the base of the old stem, sufficiently high up to leave a space between them and the surface of the ground. These should be taken out of the pots, and be potted at once in 6-in. or 7-in. ones, placing the plants near the glass in a cool greenhouse. This is preferable to a cold frame, as it is best to keep them growing very gently through the winter.

Pompones should be all grown from cuttings put in during November, but as some of these have a tendency to flower in May, it is quite as well to have a fresh set of plants from cuttings put in some time in February, as early in the month as possible. The best specimen Pompones we ever had were from cuttings put in about the last week in November. The young plants were kept gently moving in a cool greenhouse during the winter. All specimen plants require to have the shoots stopped in order to render them compact and bushy, but they must not be stopped after the middle of June.

J. DOUGLAS.

TUBEROUS BEGONIAS.

THE increasing popularity of these proves their great value as decorative plants; but, much as they are cultivated, they deserve to be still better known, for not only are they of great service for the embellishment of conservatories and greenhouses, but they are also useful for bedding, and among the very best plants that can be had for windows in dwelling houses, where they succeed well, and flower in the greatest profusion. Plants in windows generally get killed by over-kindness in giving too much water; but with these Begonias there is no fear of that, as they are moisture-loving subjects, and unless they actually stand in saucers of water they can scarcely be kept too wet, especially when they become pot-bound and are blooming freely—a time when there is a great demand on the roots. Besides their adaptability for window culture they are not subject to insects, like other plants—a circumstance greatly in their favour; and when once they begin to flower they keep on and last in beauty the whole season through. As they are apt to draw if put in windows too early it is best to start them, and get them forward in cold frames, where they should be placed on a cool moist bottom, and have a little shade during the sunniest part of the day. Thus treated, their progress will be rapid, and they will keep sturdy and strong. If wanted large, the points of the shoots may be nipped out, which will cause them to break back and become well furnished. If wanted for bedding, seedlings may be purchased cheaply; but as these are small, it is advisable to get year-old plants, and pay a little more for them, as they fill the beds sooner, and give the most satisfactory results. In preparing the beds plenty of well-decomposed manure and leaf-mould should be dug into them, and after turning the plants out it is necessary to shelter and shade them for a few days. This may easily be done by sticking in a few Laurel or other evergreen branches among them, and these will keep off sun and wind sufficiently to enable them to start fairly and get a firm hold. Although Begonias will do very well in exposed positions, the situation that suits them best is a partially shaded one; but, wherever planted, it is important that they be mulched, so as to keep the ground shaded and the plants moist at the roots. This can best be done by the use of Cocoa-nut fibre, a good non-conductor of heat; but, failing the fibre, sifted leaf-soil or broken-up horse manure answers the purpose as well. To encourage Begonias to grow and bloom freely they must be supplied with water regularly when the weather is dry; and if they get a soaking of liquid manure occasionally it will be a great help. Late in

autumn, when the flowering is over, the plants should be lifted and laid in cold frames, where the tubers can be covered with dry soil and preserved from frost, or they may be buried in sand or dry earth in a shed, and wintered in the same way as Dahlias. Those grown in pots are best left undisturbed in the soil till the spring, when they may be shaken out and divided, and afterwards re-potted and grown on again. Tuberous Begonias may also be increased by cuttings made from the points of the young shoots, but these should be put in as soon as they can be got after this. If placed in sharp sandy soil in deep pans, and set under handlights in a shady spot, they root freely, provided they have only just enough water to keep them from flagging.

S. D.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

THE red-tinted foliage of Oak, plentiful in hedges and copses, that were cut last winter is valuable to use with Tea Roses and with many red and pink flowers. It furnishes a large bowl of Gloire de Dijon and Madame Falcot, and helps to form a glowing mass of colour on the dinner-table with French Poppies, scarlet and deep pink, in alternate glasses. A strong hedge of autumn-sown Sweet Peas now yields handsome bunches, picked with old tips of leaves and tendrils; the so-called scarlet are best kept by themselves, and the old colours—purple, white, and pale pink—put together. Two or three spikes of the pure white *Dictamnus Fraxinella* are in an upright glass with the bright green, newly-developed fronds of Hart's-tongue and Polypody Ferns. A tall glass holds the last of the Oriental Poppies, with the deeper red Papaver bracteatum. This fine Poppy, cut 2½ ft. long, fills the centre of the glass, while the Oriental suits the outside of the bouquet, the stalks being generally bent in one direction, so that the great flowers can be disposed in a large spreading mass. A bunch of Spanish Iris of the blue and white colourings stands alone with foliage borrowed from the Virginian Spiderwort. In pots we have *Amaryllis* and *Pelargoniums*.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Humæa elegans.—When well grown, this greenhouse biennial ranks amongst the foremost of plants noted for handsome foliage and elegance of inflorescence—drooping, feathery plumes, the latter may be called. It is invaluable for the centres of large vases in summer, and also for the sub-tropical garden, either for putting out in beds or for plunging in the pots in the turf, or near the margins of walks in order that its rich fragrance may be more frequently enjoyed. It should be raised from seeds sown on a hotbed in May, and the seedlings should be pricked off as soon as they can be handled and potted on before the roots get matted together. They should be grown in the open air, where they should be treated like *Chrysanthemums*, and be housed about the beginning of October and afforded ordinary greenhouse cultivation. By the new year they will be ready for their final shift into large pots, and about the middle of May they may either be placed in position in the open air or be planted out in beds. They flower best when plunged in the beds in the pots, but need more attention as to watering than they do when turned out.

General work.—The showery weather which we have had during the past week has been just what was needed by all having much flower garden work to do; therefore, with due forethought and energy, there ought now to be but little, if any, planting out to do, nor should there be much thinning out and transplanting of annuals of any section. The advancing season bespeaks how important it is that it be done quickly and whilst the conditions as to weather are so favour-

able. This done, the next most important item is the well-doing of the plants; to this end and also to the earlier effectiveness of the same, mulch or keep the ground loosened with a small hoe, or, where the plants are very close together, with a pointed stick. Carpet beds we prefer to mulch with Cocoa-nut fibre; *Violas*, *Calceolarias*, and the like with droppings. Sub-tropicals are indirectly mulched by pegging down the groundwork plants as soon as practicable. Trivial and unnecessary as these operations may appear, they are important factors to real and speedy success. Staking, tying, and keeping the flowers picked off *Cannas*, *Castor-oils*, &c., to aid their more rapid growth are the only other immediate requirements needed by sub-tropicals. Ordinary kinds of bedding plants should frequently be gone over in order to remove bad foliage and flowers. *Pansies*, *Violas*, and *Calceolarias* are quickly exhausted, and cut a sorry figure in dry weather if the old flowers and seed vessels are not removed frequently. Peg down or pinch as may be requisite all groundwork plants; high keeping and the work ing out of every line or panel true to pattern is of the utmost importance in carpet bedding, and those who do not intend to take this pains ought not to attempt it; as for myself, though not highly enamoured of this way of planting, within certain limits and in certain positions I am prepared to defend and practise it. Now is a good time to make another sowing of biennials and perennials, such as Brompton Stocks, Sweet Williams, Wallflowers, Delphiniums, Foxgloves, *Aquilegas*, Canterbury Bells; in fact, seeds of these may be sown now in the open borders with a fair prospect of success, the only real danger of any mishap occurring to the seedlings being from attacks of slugs, which should be prevented by using soot or lime liberally about the seed beds. Keep all herbaceous plants well up to supports; our rule is to place sticks to each plant—in size as may be required—at the beginning of the season, and look over the plants once a week afterwards in order to tie or remove suckers, weeds, &c. Finish the clipping of Box edgings and evergreen hedges, also the cutting back of flowering shrubs and the new growths of those that are encroaching on walks. Other pressing routine duties may be summed up in three words—mow, sweep, and weed.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Statice.—Blue flowers are comparatively scarce amongst greenhouse plants, particularly such as are of a lasting character. The different species of *Statice* supply various shades of this colour; the flowers are most enduring, and the plants when healthy keep on producing a succession so long as they are in active growth, added to which, the plants last for a number of years when well treated; but there are several matters connected with their cultivation in which they differ somewhat from the generality of other subjects. To keep the leaves in a healthy condition they must not be exposed to the full force of the sun from the time it gains considerable power until it wanes in autumn; otherwise, they assume an unhealthy, bleached appearance, and do not attain nearly their full size. The plants should not be kept lower than from 40° to 45° during winter, or the growth becomes stunted. They are free rooters, and require more pot room than many things which attain larger size. Good yellow loam is the best soil in which to grow them, and when in full growth during spring and summer they are much assisted by frequent applications of manure water. They require no training for ordinary uses. *S. profusa*, *S. Butcheri*, *S. imbricata*, *S. brassicifolia*, and *Holfordii* are all deserving of cultivation. Anyone who will keep up a stock of these need not be without their flowers for any length of time. If cut whilst fresh and dried quickly, they will retain their colour and form for a length of time. Cuttings made of moderate-sized shoots kept in a medium heat and confined under a bell-glass strike freely. The present is a good time to put them in.

Pleroma elegans.—This bears lovely, large, violet-coloured blossoms, unapproached by any flower of a like colour. It is easily managed, requiring only to be turned out-of-doors from about the middle of July to the end of August, so as to ripen its wood. It attains a considerable size, but is best for general use when in a small or medium state; it blooms freely, and will flower in 8-in. or 9-in. pots. It succeeds in peat or loam, but I prefer the latter. All that is required is to see that the shoots are frequently stopped from the time the cuttings are well rooted until the plants have attained a bushy condition; by this means, half-a-dozen sticks will give all the support which a good-sized plant requires. Cuttings made from the young shoots as soon after this time as the wood has attained a little solidity will strike in three weeks. It blooms from the young growth in July, August, or September, according to the way in which it is treated as regards warmth in spring. Half-a-dozen of its half open flowers well placed in a bouquet give an effect that nothing else I have ever seen used does. It likes a little shade in summer, or its leaves turn red, and do not last their full time.

Cassia corymbosa.—Although this is seen to the best advantage when planted out and covering a wall such as the back of a greenhouse or conservatory, yet, as generally grown in a pot, it looks well and yields a succession of its bright yellow flowers which come in during the summer and autumn. If kept repeatedly stopped, so as to induce the formation of plenty of shoots near the base, it will need no sticks. Cuttings of it should be put in about this time if they can be had 3 in. or 4 in. long; they ought to be taken off with a heel and treated in the usual way.

General stove stock.—More air should now be given to the general collection of stove plants than hitherto, but in doing this care ought to be taken never even at this season, whilst the growth of most plants is yet soft and tender, to carry this so far as to over-dry the atmosphere, otherwise the foliage gets stunted, and the attacks of red spider are almost certain to follow. Keep all but the exceptionally few things that do not like too tight a position as well up to the glass as circumstances will permit. Where this is done, the soil may be used freely without danger of the young within the pots getting too wet; mere sprinklings on the top of the leaves are useless, as far as keeping down insects is concerned. Instinct teaches most of them to keep to the underside of the foliage; consequently, unless the water reaches well the spots where they congregate, they are not affected by it. Close early whilst there is plenty of sun warmth; this is much preferable to fire-heat. Now that the stock of bedding plants will be cleared out from pits, where, if necessary, a little fire-heat can be given, it will be well to thin out such of the plants from stoves as can be accommodated in the pits during summer. This will be of immense benefit to the whole, as, wherever crowding exists, good cultivation is out of the question. Attend to the timely stopping of all young stock required to assume a bushy form, not that it is desirable to give plants in general a too formal, dumpy appearance, but the absence of early and sufficient pinching back of the leading shoots necessitates the after use of more sticks and ties to support many plants than should be employed.

Coronilla glauca.—This is a pretty summer-blooming floriferous plant. It is not a large grower, and on that account may be used plentifully. Small examples of it in 6-in. or 7-in. pots bloom freely. It requires ordinary greenhouse treatment. When done flowering it should be cut back freely.

Stove twining and climbing plants, grown as specimens for removal to conservatories or greenhouses when in flower later on, will require frequent attention as to keeping the shoots trained to the sticks or wire supports, but for home decoration, where the plants will not necessarily be subjected to any knocking about such as in conveyance to an exhibition, there is no neces-

sity for their being tied so as to have any approach to formality. Where to be so used all that is required is a few sticks with the shoots loosely wound round them. Stove plants that can with advantage be so used in cooler houses during July and August may include *Allamandas*, *Bougainvillea glabra*, *Dipladenias*, *Clerodendrons*, *Ixoras*, *Rondeletias*, *Vincas*, *Tabernaemontanas*, and others of like character which are often kept wholly in stoves at a time when they would be most useful in conservatories to help to maintain a display of bloom, but to enable such subjects as above named to preserve their flowers in fair condition, and not to receive injury by being thus submitted to cooler treatment they must have been so treated previously as will ensure their bearing this. It is not enough that for two or three weeks before being taken out of the stove they should have more air and less shade, which will effect the necessary conditions of keeping the atmosphere drier, but they should all along, whilst the growth was progressing, have been kept with their heads close up to the glass in a tight house; without this no amount of after hardening that they can have will enable them to stand the lower temperature and preserve their flowers so as to have a good appearance. It is the want of this gradual preparation—this exposure to light through the early stages of the season's growth that prevents the possibility of many stove plants being used in the way here indicated, thereby reducing much of their usefulness. I have found that the cheek thus given for a time during the warmest part of the summer was the best means of giving many things a rest, and much to be preferred to the severe root-drying process often practised.

Veronias.—Which ever way the autumn and winter-flowering supplies of these useful plants are managed—in pots or planted out for subsequent lifting—they must be encouraged to make bushy, stout growth. To keep them compact it is well to again pinch out the points of the leading shoots, but with the autumn-blooming kinds, such as *Andersoni*, the next stopping is the last they should receive.

Begonia fuchsioides.—This plant, not now so much grown as it used to be, is, nevertheless, one of the best of all the *Begonias*, and where well managed gives a profusion of flowers for a lengthened period either when grown in pots or planted out. Where trained to a pillar or rafter, it can be accommodated with intermediate warmth, it is one of the most effective plants in cultivation, with the still further recommendation that its flowers are well adapted for cutting. Examples required for flowering in autumn should now be exposed to all the light possible, giving no more shade than is necessary for such other things as may happen to be grown in the same house. If treated in a way to give solidity to its succulent shoots it will bloom in either a large or small state; moderate sized plants, such as may be grown in 9-in. or 10-in. pots are generally the most useful. Small ones that have been hitherto kept in 6-in. or 7-in. pots if now moved into others two or three sizes larger will make nice specimens before autumn.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Pines.—Plants now swelling off fruit will require more water of a stimulating nature than has hitherto been given to them; they will also derive great benefit from diluted liquid carefully syringed over the surface of the bed and into the axils of the lower leaves after the house is closed for the day. Keep the atmosphere moist by damping the walls and all available spaces and by filling the evaporating pans with liquid from the manure tank, but avoid heavy overhead syringing, as it increases the size of the crowns and encourages the growth of galls and suckers. Let the temperature range from 70° at night to 85° by day. Give a little air at 76° gradually increase it as the sun gains power, and close in time for the house to run up to 90° with solar heat. Remove ripe fruit to a

cool vinery in which the Grapes are ripe and withhold water, or cut and suspend them in the Grape room until wanted for use.

Successions.—The best plants that were shifted into fruiting pots early in March should now be filling the soil with roots, and the bottom heat being satisfactory, liberal supplies of liquid or guano water will be needful at every watering. Keep them well supplied with atmospheric moisture by syringing the paths, walls, and surface of the bed, and slightly dew them overhead after closing on fine days. If the plants are plunged in Oak leaves and there is a sign of the heat declining this is a favourable time for rearranging and giving them more room if required, but it will not be well to disturb or do more than level the surface of the bed, and place a few fresh fermenting leaves on the top and between the pots as the work proceeds, as the slightest disturbance at this season sometimes starts fresh fermentation, and a violent heat just now might throw many of them into fruit. Avoid strong fire heat and dispense with it altogether when 60° to 65° can be maintained at night without it. Give air early, gradually raise the temperature to 80°, and run up a few degrees after closing.

Figs.—Trees in the second house now ripening or swelling off the first crop of fruit will require an abundant supply of stimulating liquid, and good syringing where water can be applied without wetting the fruit. Turn the foliage aside where the ripening fruit is too much shaded from sun and light, and maintain a gentle circulation in the hot-water pipes to keep the house up to 60° or 65° at night, and to admit of a plentiful circulation of air by day, without which Figs of high quality cannot be expected. If spider or scale attack the leaves, and a flush of ripening fruit puts a stop to syringing, sponge the parts affected with soap water to keep these pests in check until syringing can be resumed.

Early houses from which all the fruit has been gathered will be the better for a good washing with the garden engine, and the mulching may be replenished with fresh manure, to be washed down to the roots with liberal supplies of tepid liquid or guano water. As the second crop of fruit does not always come so fine as the first, thinning with a liberal hand will be advisable, but instead of taking off all the smallest, it will be well to take off and leave some of all sizes, to prolong the supply when the trees again begin to produce ripe fruit. Although fire-heat will still be necessary at times, it must be used in moderation, particularly at night, when comparative rest will benefit the trees, and early closing with solar heat and moisture will redeem the time lost without distressing them. When young trees in pots intended for forcing have made their second growth, stopping must be discontinued and stimulating food must be withheld, in order to secure firm, short-jointed wood, which will be thoroughly ripe by the autumn.

Hardy fruit.—Our prospects, at one time so promising, like our trees, are now sadly blighted. Plums, Cherries of the Morello family, Black Currants, and, most important of all, Apples in this part of the country are literally devoured by aphid and grub, and it is doubtful if many of the trees in cold districts will ever recover from the shock which has so quickly followed one of the finest blooms we have had for some years. Pears are not so badly affected as Apples, and in many places the fruit is plentiful, clean and fine. Peaches, Nectarines, and Apricots are abundant, tolerably forward, and the trees being clean, healthy, and vigorous, good crops of these may now be considered quite safe. If any of the trees remain unmulched, no time should be lost in getting some kind of covering placed on the borders. Where they are heavily cropped good stable manure is undoubtedly the best material that can be used; but, lacking this, anything capable of checking evaporation will have a beneficial effect. On all light non-calcareous soils stone fruit trees derive great benefit from liberal dressings of old lime rubble, which, if laid on

the borders in the spring, forms no mean mulch in itself, as it keeps in moisture better than many imagine, while the properties it contains supply an important want often severely felt by the trees at the time of stoning.

Before the laying-in of the shoots of Peaches is commenced, a thoroughly experienced person should go over the trees to complete the disbudding and thinning, and at the same time to pinch the points out of young shoots which are likely to become too strong, to the detriment of weaker growths, or where they are likely to detract from the size of the fruit, and on no account should a single shoot be laid in unless it is wanted to carry fruit next year, or to complete the furnishing of the tree: Pears, Plums, and Cherries may now have all the strongest breastwood cut away to the third or fourth eye, but the system of leaving all the growth to be cut away at once is not a good one. It is much better to commence earlier and carry on a regular system of pinching. In wooded districts the early kinds of sweet Cherries will now require netting to protect them from birds, now becoming more plentiful. Strawberries, too, a most abundant crop, will require attention. There are numerous modes of treatment recommended for the production and protection of this valuable fruit. The most important points at the present time are copious supplies of water, a ground covering of straw or litter to keep in moisture, and protection from birds and slugs. Where the latter are numerous, or, indeed, where they do not exist—quantity and quality being the first consideration—the most economical plan is to place four short sticks to every old stool and two to younger plants, and form a support for the fruit by running a piece of matting or twine round them some 9 in. from the ground. All the trusses can then be turned outwards to the influence of sun and air. Slugs are isolated, and the fruit dries quickly in showery weather.

ORCHIDS.

J. DOUGLAS, LOXFORD HALL.

Best India house.—There are certain varieties and species of *Cypripedium* that succeed best in this house; indeed, some that do well in a cooler house succeed quite as well here and grow more freely. Now is a good time to attend to repotting them. Some succeed best in small pots, and amongst these may be named *C. barbatum* and its varieties, *C. Veitchii*, *C. Lawrenceanum*, and others of that type. *C. Lowii*, *C. Stoneyi*, *C. Domini*, and others of that class succeed perfectly well in large pots in the form of good specimens. These should also be potted if they have done flowering, taking care to remove any decayed, useless compost from the roots. I find at this season that it is a good plan to syringe these plants overhead twice daily in hot weather, an operation which does them good and has also the effect of keeping them free from red spider and thrips. The different species of *Angraecum* should now be pushed on in a high temperature, with plenty of moisture; they are now pushing out fresh roots and are growing freely. A very small species of thrips does much damage to the plants by preying on the young leaves just pushing out from the centre of the plants. It is not observed until the effects of its presence is seen on the leaves. Tobacco water kills it. *Grammatophyllum Ellisi*, another Madagascar plant, well worthy of culture, does best in the warmest house. It generally flowers in August, and should now be pushing its flower-spikes from the base of the last growth. I believe it flowered recently at Burford Lodge. It does best near the glass in a pan or basket. The temperature of the house should now be 70° as a minimum.

Cattleya house.—Many of the Cattleyas are now starting into growth, and some have even made considerable progress. Where plants of *C. Mossiae* or *C. Mendellii* have flowered freely, they are not likely to produce more than one growth from each lead, and that is quite sufficient in the case of old-established plants. Plants done flowering and starting to grow ought to have a rather higher temperature, say 65° at night, and a moist atmo-

sphere. We keep our house rather dry at present, with a temperature of about 60°, as we want to keep some Cattleyas and *Oncidium*s in bloom as long as possible. *O. crispum*, a good and distinct species, is now in flower in this house. It seems to do well potted and treated similar to Cattleyas, but we allow the roots to grow over the sides of the pots. *Odontoglossum citrosum* is over, and the bulbs, by their slightly shrivelled condition, show the strain to which they have been subjected during the flowering period; they will soon plump up in a higher and moister atmosphere, aided by a good supply of water to the roots. The young growths are now pushing on rapidly. *Oncidium Marshallianum*, certainly one of the most beautiful of the yellow-flowered species, is also starting into growth, and the young roots are pushing over and down the sides of the pots. Look over them every night for slugs and snails, and also trap these pests with bran or Cabbage leaves. Allow the plants to have all the light it is possible to give them, but do not expose them to the direct rays of the sun.

Cool house.—Those who have a number of plants of *Oncidium macranthum* need not be without its flowers for the next two months at least. This is one of the most distinct and best of *Oncidium*s, and valuable because it succeeds well in the cool house. It has one fault, a serious one, viz., the flowers take so many months to develop, that the plants are well nigh exhausted before they open. Two seasons' flowering sometimes gives the plants a serious check; our best plant flowered two years in succession, and looked all the worse for it. This year it has not produced any flower-spikes, but is taking a rest, we hope, to produce better spikes next year. This species requires treatment similar to that needed by most other cool house species. If any plants require repotting this can be done when they start into growth after the flowering period is over. The weather has not been very warm as yet, but if it should set in close and very hot, this house will require extra attention, in order to prevent the plants from being injured by the heat. Give plenty of ventilation night and day, and use thick shading, raised 1 ft. or so above the glass, so that a circulation of air may be kept up between the glass and the shading.

KITCHEN GARDEN.

R. GILBERT, BURGHLEY.

We are just now planting in their permanent places Brussels Sprouts, the previous crop being spring Cabbage and Lettuce. Brussels Sprouts being strong feeders, we treat them to a good manuring and a deep digging. Few things are so profitable, scarcely any so hardy, as Brussels Sprouts; therefore, they deserve all we can do for them. Our first lot of Celery is already out and in the trenches, and the bulk of our crop will be out before this notice appears in THE GARDEN. My favourite varieties are Carter's Incomparable Dwarf and another dwarf white called Hasting's White Celery. I also have a few rows of Major Clarke's, which grows to a large size, and is most useful on special occasions. Among the best varieties of Peas to sow at this season is William I. and Unique, both of the green marrow type, and not so subject to that fatal disease, mildew, as many of the strong growing varieties. Parsnips, Carrots, Beet, and Onions will now require thinning, hoeing, and cleaning. I find the smaller Onions keep better than giants, and are better liked by the majority of cooks. Late Potatoes should be cleaned and moulded up at once. I may add that we have begun lifting Ashtops from the open ground, a capital crop. Sow at once a good year's supply of Parsley for spring use. I intend next week to begin planting in the quarters Veitch's Giant Autumn Protecting and Walcheren Broccoli. Speaking of Broccoli, I may add that Cattley's Eclipse met within a week the hand-light Cauliflowers Walcheren and Early London—both this year much better than usual. Never surely was there such an abundance of slugs as this season; therefore, soot and lime are in daily use. We sow

them broadcast over any kind of seeds appearing above ground. Soil dried to dust is also useful for sowing on small plants; these miniature vermin do not at all relish any gritty. Sow now Coleworts, Early York Cabbages, and a few Lettuces, but defer sowing Endive until the first week in next month; if sown earlier than this it generally runs to seed. Scarlet Runner Beans and late Peas must at once be staked. Rough, unseasonable winds, now so prevalent, leave their mark on all tender vegetation.

NOTES OF THE WEEK.

CEANOTHUS RIGIDUS.—This beautiful evergreen shrub is now blooming profusely at Fettes Mount, near Edinburgh. It covers some 8 sq. yds. of a south wall with lovely blue blossoms, so densely packed as to almost hide the small glossy green leaves. It is planted in a rich, light soil, and Mr. King, the gardener at Fettes Mount, informs us that it has withstood the severity of many winters unharmed, while at Chiswick in the form of a bush in the open we remember a severe winter killed it.

ONCOBA KRAUSSIANA.—This pretty Natal shrub is now flowering in the T range at Kew. It has a neat habit of growth, and is said to reach a height of 12 ft. The flowers, which are white with yellow anthers, measure about 3 in. across, and are not unlike a single white Rose. Another species, *O. spinosa*, sometimes met with in gardens, has flowers similar to those of *O. Kraussiana*; the stem is clothed with spines, and the leaves are more hairy than in the other kind just mentioned.

PASSIFLORA CINNABARINA.—This and two other species are the only Passion flowers whose home is not in the New World, these three being natives of Australia. *P. cinnabarina* is a very pretty one and a free bloomer, even in a small state. A plant of it in a 6-in. pot has recently borne about half-a-dozen rose coloured flowers measuring some 5 in. in length and 4 in. across. The flowers are succeeded by round fruits about the size of a Peach, and pale red in colour. A thriving young plant of it is now fruiting in the Begonia house at Kew.

LILium HANSONI, as we saw it in flower in the open air at Messrs. Barr and Sugden's grounds at Tooting, is really a handsome Lily, remarkable for the great substance possessed by its flowers, which seem as if chiselled out of wax. They are of medium size, larger than those of the common *L. pyrenaicum*, and of a rich golden yellow copiously spotted with brown. The growth is about a yard high, and the leaves in whorls like the Martagon. It is a Lily that may be added without hesitation to any collection of hardy plants. It was well figured some time ago in THE GARDEN.

SARMENTA REPENS.—What a beautiful little gem this Chilian pigmy is! Its low, trailing habit and little roundish green leaves with its bright orange-red, sparkling flowers, like little Tydea blossoms, elicit the admiration of everyone. Somehow this little plant does not make itself at home in some gardens—possibly the fault of the treatment it receives. It likes moisture and light, plenty of both, but it does not like heavy soils, nor yet close heat. At Kew there is a very healthy patch of it growing on a bit of Fern stem suspended near the roof in the Heath house. Here it seems perfectly happy, and has been flowering very freely for the last three months. I have seen a figure of it somewhere growing on a piece of stone—sandstone, probably—and I should think that is what it grows on naturally, its clinging habit and the way in which the running branches fasten themselves round a bit of crock or the side of a pot

helping one to some such conclusion. A block, such as Orchids are grown on, or light, peaty soil will not be disagreeable to this *Sarmienta*, though if the block can be kept continually moist I should prefer that to the soil.—B.

ORNITHOGALUM ATRUM.—Distinct from any other species of *Ornithogalum* is this golden-flowered species, a really bright and attractive plant, with large flowers on moderately tall, erect spikes. The colour is bright orange-yellow, which, contrasted with the other greenhouse species, *O. thyrsoides*, is very beautiful. It is apparently a plant well suited for a cool greenhouse. In flower at Messrs. Veitch's nursery, Chelsea.

SPIRÆA ARUNCUS ASTILBOIDES.—It is almost impossible to overrate the merits of this beautiful new plant which Mr. Bull has lately introduced to cultivation. Though botanically it is considered to be a variety of the common Goat's-beard (*S. Aruncus*), it is so different from it, and also so much superior to it, as to well merit specific distinction—at least from a garden point of view. In Mr. Bull's nursery, at Chelsea, it has for a long time been a great attraction, and it is still in bloom. Some huge specimens of it in large pots are very fine objects, as the tall plumes of pure white blossoms rise so beautifully above the elegant spreading foliage. It is an excellent greenhouse plant, and, what is more, it is hardy, so that we may expect to see it some day take the place of the common kind.

IMPATIENS SULTANI.—The new Balsam noted some time ago as being finely in flower at Kew has recently been named *I. Sultani* by Sir Joseph Hooker for Messrs. Veitch, in whose nursery at Chelsea it is now in flower. It is named in compliment to the Sultan of Zanzibar, from which country the seeds were sent to Kew. It promises to be a very fine garden plant, being good in habit, a profuse flowerer, and its brilliant magenta colour is only equalled by that of such plants as *Masdevallia Harryana* and *Lindeni*. We hope shortly to give a coloured plate of this Balsam.

BOMAREA CONFERTA.—This new *Amaryllidaceous* plant is now in flower for the first time under cultivation in Messrs. Shuttleworth & Carder's nursery, 191, Park Road, Clapham, the introducers of it from South America. It is not only as fine as we expected it to be, but far more so; in fact, it is more ornamental than any other species of *Bomarea* in cultivation, the colour, a kind of soft carmine-crimson, being so decided and pleasing. The flowers are over 2 in. in length, producing two or three dozen together in dense clusters terminating the long slender stems, which twine gracefully to any support that may be within its reach. The colour of the blossoms in contrast with the rich green of the foliage is very fine and highly attractive. It is, in short, one of the finest additions to cool greenhouse plants that have been made for a long time. B. Shuttleworth, likewise a new species, is also showing flower in the same nursery.

A PRETTY COMBINATION.—One of the most charming illustrations of how two plants may be grown together, so that one may show off the beauty of the other to advantage, is a pair of the little *Sarmienta repens*, with showy scarlet urn-shaped blossoms, and the variegated form of the British Moneywort (*Sibthorpia europæa*), a delicately beautiful little trailer, which puzzles so many to grow well. This combination may be seen in one of the cool "insectivorous plant" houses in the Royal Exotic Nursery, Chelsea, where both plants apparently find a congenial home, for both are perfection as regards growth. The glowing colour of the *Sarmienta* in contrast with the delicate variegated foliage of the *Sibthorpia* is very beautiful.

such as is rarely seen among plants. Both plants delight in a cool, moist, and partially shaded house.

IXORA SALICIFOLIA FLORIBUNDA.—Among the numerous *Ixoras* now cultivated few are more distinct than *I. salicifolia*, or more beautiful when well grown and flowered, but it is not such a free bloomer as one could wish. The variety under notice is, however, remarkably floriferous, producing flower-heads in profusion. It is one that has been introduced to notice by Messrs. Veitch, in whose nursery at Chelsea it may now be seen in full bloom, small plants of it even being laden with large heads of bright orange-red blossoms. The narrow sparse foliage, too, gives a lightness and elegance of habit not possessed by other *Ixoras*, except *I. Burbridgei*, likewise a beautiful plant.

MELIA AZEDARACH.—A well flowered specimen of this handsome tree may now be seen in the cool economic house at Kew. It is erect growing, with Ash-like foliage, and bears at the tops of its branches clusters of pale lilac and white, very fragrant flowers, which towards evening emit a very powerful odour. This plant, which is sometimes known as Persian Lilac, *Pride of India*, *Holy Tree*, &c., is a native of China and India, but is now widely distributed over the warmer parts of the globe, in some of which it is cultivated for its medicinal properties. In S. France and Spain this tree is stated to thrive well in the open air. For planting out in conservatories, or even as a pot plant, it is deserving of cultivation; the beauty of the flowers, their fragrance, and length of time during which they last, and even the appearance of the plant when not in flower, being desirable properties in a plant suitable for garden purposes.

HYMENOCALLIS MACROSTEPHANA.—This very beautiful bulbous plant, it will be remembered, was first brought into prominent notice by Mr. Woodbridge, of Syon, who exhibited it at South Kensington on several occasions. We are pleased to see that such a beautiful plant is becoming better known, for it is certainly as fine a stove plant as can be grown. It is somewhat similar to a tropical *Pancratium*, but the web-like membrane which connects the stamens is much broader, and the flower-heads being of snowy whiteness, the effect which they produce is charming. There is a fine specimen of it now in flower in the Royal Exotic Nursery, Chelsea, the perfume emitted by the blossoms of which quite pervades the whole house. It was the subject of a coloured plate in THE GARDEN last year.

FRUIT TREES IN POTS.—One of the chief attractions, and also one of the most uncommon, at South Kensington this week was a collection of fruit trees in pots, all admirable examples of what fruit-tree culture in pots should be, being laden profusely with fruit of high quality. These came from the well-known fruit tree nursery of Messrs. T. Rivers & Son, Sawbridge-worth, and consisted chiefly of Nectarines and Cherries. Among the Nectarines the new kind named Lord Napier, one of Messrs. Rivers' seedlings, was shown in perfection better than we have ever seen it, the fruits, even on small standards, being very large for those of a Nectarine, and some of the gathered fruits were quite 3 in. in diameter. Its merits as an orchard house variety is thus clearly shown, and it is among the earliest. Its colour is a pale creamy yellow with a bright red cheek, and the flavour delicious. Other Nectarines shown were Rivers' Orange, a kind in the way of Pimston Orange, but larger and earlier, and the Stanwick Elurge, of which there were excellent examples. The Cherries included among the pot trees Early

Rivers, a large black variety; Early Red Guigne, also a large kind; Frogmore Bigarreau, an excellent sort; Bigarreau de Schreken and Guigne d'Annonay, the latter a desirable sort and one that is beginning to find favour. A dish of a new Peach called the Conkling was shown. It is described as a large late yellow Peach of good quality. It is certainly a handsome fruit, and if of good flavour will be an acquisition.

RARE HARDY FLOWERS.—Among the plants in flower in the Hale Farm Nursery, Tottenham, are the following: *Serapia neglecta* (very fine), *Lilium croceum* var. *saturatum* and *robustum*, *L. tenuifolium*, *Glossocoma clematidea*, *Delphinium Menziesi*, *Orchis Stabiana*, *Habenaria dilatata*, and *Hastingsia alba*, all interesting and beautiful.

SPECIAL PRIZES.—We are requested by Messrs. Carter & Co. to state that they intend offering a series of prizes, of the value of from 10s. to £3, for their new Peas *Stratagem* and *Telephone* and *Culverwell's Telegraph*, to be competed for at the undermentioned flower shows: Chiswick, June 22; Royal Horticultural Society, June 27; Richmond, June 29; Bagshot, July 1; Twickenham, July 7; and Oxford, August 2. The particulars of the competition can be obtained from 237, High Holborn, London, and the prize schedules of the societies respectively.

SOLANUM FRAGRANS.—Some of the species of *Solanum*, such as *S. jasminoides* and *S. venustum*, are very ornamental climbers, and among these may be included *S. fragrans*, of which a small plant is now in flower in one of the stoves at Kew. It is a large, smooth-leaved plant, and when well managed grows to a height of from 15 ft. to 20 ft. The flowers are borne in pendent racemes, and when in bud they might easily be mistaken for berries, their shape and azure-blue colour giving them more the appearance of fruit than of flowers. When they expand the colour changes to a yellowish hue, and as expanded flowers and buds are borne together on the same raceme, they produce a singular and pretty effect.—B.

IRIS JUNCEA.—Of the numerous Irises that flower at this season, none are more beautiful than this species, one of the bulbous section now correctly placed under *Xiphion*. It resembles the Spanish Iris somewhat, but the leaves are more slender—in fact, like the Rush, as the specific name implies. The flowers, as regards size, are intermediate between those of the English and the Spanish Irises, and of the richest golden-yellow imaginable, the yellow *I. lusitanica*, itself bright, being dull in comparison with it. Unfortunately, the Rush-leaved Iris seems to be rare, for we seldom come across it. We have never seen it so fine as a clump of it which we saw the other day in Mr. Parker's nursery at Tooting, where it seems to do well. Even in the extensive Iris beds in that nursery it is a conspicuous and bright plant.

Covent Garden Market.—An anti-obstructionist, writing to the *Times* this week, says: "The state of Covent Garden Market and its tributary streets are a positive disgrace to the metropolis. Well has it been nicknamed by *Punch* 'Mud Salad Market.' There is such a muddle of carts and waggons all round it, and only an ill-defined line kept just wide enough to allow one to crawl carefully along, but certainly not enough to admit of two meeting and passing one another, that both yesterday and to-day it was with the utmost difficulty that my Hansom could make its way from Wellington Street to Garrick Street, and to-day, in consequence of the conduct of an obstructionist costermonger's donkey the single file of cabs was thrown into confusion, regarded helplessly by a policeman, and we nar-

rowly occurred an accident. Perhaps when the Duke of Bedford in his own carriage has met with what the Americans call 'a difficulty' some improvement will be inaugurated, but evidently not till then, as, in spite of complaints from timid residents and from a much-enduring public, this pigstye state of things is still allowed to continue. The hotel-keepers are afraid of publicly protesting, lest they should injure their custom. If the Duke of Bedford has not lost all control over his own property let him at once take energetic steps to cleanse this muck-heap of London."

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 13.

SOME choice things were shown on this occasion, and among them the following were awarded first-class certificates:—

CATTLEYA GIGAS BURFORDENSIS.—The finest variety of this gorgeous Orchid we have yet seen, the flower being unusually large, the sepals of a rich rose-purple, and the labellum (measuring 3 in. across) an intense rich amethyst, margined with a lighter hue and exquisitely crisped. The plant exhibited was a fine one, bearing from one sheath five superb blossoms. Sir Trevor Lawrence, Burford Lodge, Dorking.

RHOODODENDRON BALSAMIFLORUM.—A variety belonging to the Japanese section, and having perfectly double flowers. In colour it is a beautiful flesh-pink, a tint particularly attractive and pleasing. It is the only really double flowered Rhododendron in cultivation, and is a valuable acquisition to gardens. The plant shown bore a cluster of eight flowers, but it will, of course, become much finer. Messrs. Veitch.

ODONTOGLOSSUM VEXILLARIUM COBBIANUM.—A lovely variety remarkable for the two decided and quite different colours which the flowers possess, the labellum being pure white, while the sepals are a deep rose. Bicolorous forms are not uncommon, but this is the finest we have met with. Mr. Cobb, Silverdale Lodge, Sydenham.

NEPENTHES MASTERSLANA.—A handsome Pitcher plant—indeed one of the finest in cultivation. The plant shown was dwarf and similar in habit to *N. distillatoria*, which, we believe, is one of its parents. It produces pitchers freely, no fewer than six being on the small plant shown. The largest was about 8 in. long, elegant in form, and of a deep sanguineous red. Messrs. Veitch.

ZYGOPETALUM EXPANSUM.—A handsome variety of the *Z. maxillare* section. Its flowers have broad labellums of a deep rich purple, while the sepals are a sort of metallic green, two striking colours when in contrast. The foliage is slender, and the growth different from that of most others. A cut spike bearing a dozen flowers was shown from a large plant. Sir Trevor Lawrence, Bart.

ADIANTUM LEGRANDI.—An elegant Maiden-hair Fern, apparently a congested fronded form of *A. gracillimum*. The fronds are large and broad and covered with very fine pinnae. The growth is dwarf and compact, and the peculiar tints of the new fronds contrast finely with the deep green of the old. Messrs. Veitch.

PELAGONIUM COMTESSE HORACE DE CHOISEUL.—An Ivy-leaved variety having large trusses of beautiful double flowers of a rich rose-pink. It is among the finest double-flowered Ivy-leaved varieties that has been shown. M. Lemolne, Nancy.

LOBELIA PUMILA INGRAMI.—A beautiful new variety possessing all the good properties of a first-rate bedding Lobelia, being dwarf and dense in habit and an abundant bloomer. The flowers, which are pure white, are very effective in masses. Messrs. Wood & Ingram, Huntingdon.

MASDEVALLIA HARRYANA STRIATA.—One of the finest forms of this beautiful cool house Orchid; its flowers are very large, and have a ground colour of bright magenta striped with a deep rich crimson, and broadly margined with dark crimson. The specimen shown was a fine one,

bearing a dozen and a half fully-developed flowers. Sir Trevor Lawrence, Bart.

GLOXINIA GARIBALDI.—One of the most brilliantly coloured varieties we have seen. It is an upright flowered sort, the blossoms of which are large, the rim fiery vermilion, the tube white and copiously spotted. It is an abundant flowerer and vigorous in growth; altogether a first-rate variety. Messrs. Veitch.

GLOXINIA ROBIN HOOD.—Another splendid variety with larger and finer flowers than those of Garibaldi, but not so brilliant. The corolla forms a perfect circle, and the colour a rich, deep crimson, bordered with a lighter hue. Messrs. Veitch.

BEGONIA HON. AND REV. J. T. BOSCAWEN.—A very fine variety of the tuberous section—among the finest that have emanated from the Stanstead Park Nurseries. The flowers, which are very large and perfect as regards form, and the colour is a glowing deep crimson. The graceful drooping habit of the plant and the profusion with which the flowers are borne make it valuable. Messrs. Lang & Co.

CALANATHE CHARLES PAGE.—A perpetual flowering variety, remarkable for its profusion of blossom, the latter forming rosettes of the richest, deep crimson, and very bright and attractive. The plant shown bore a score or so of blooms. Shown by its raiser, Mr. G. Duffield, Winchmore Hill.

AREIDES FORMOSUM.—A provisional name given to a very beautiful variety, supposed to be a hybrid between *A. Larpentea* and *A. odoratum*. It is in the way of the latter in growth, and bears long, graceful spikes. The plant shown had a spike bearing about two dozen flowers, larger than those of *A. odoratum*, and the trifid labellum is beautifully coloured with amethyst and spotted. Messrs. Veitch.

LILIU ELEGANS ROBUSTUM.—A variety of a very variable Lily, but one of the finest withal. The flowers, which are large, are of a rich orange-yellow, copiously spotted with deep brown. Judging by the specimens shown, it is a robust grower and free flowerer. Mr. T. Ware, Hale Farm Nursery, Tottenham.

VIOLA CHAMPION.—A creamy-white kind, having the centre rayed with dark lines. If good in habit and free in bloom, it must be a valuable variety. Messrs. Heath, Cheltenham.

PELAGONIUM GOLD MINE.—A variety remarkable for the vivid brilliancy of its large, finely formed, vermilion-coloured flowers, which are produced in large trusses. The plant is of good habit, and otherwise so excellent as to induce the Pelargonium Society to likewise award it a first-class certificate of merit. Messrs. J. & T. Hayes, Edmonston.

PELAGONIUM GRATITUDE.—A very handsome variety of the show section, having large, beautifully shaped flowers, with the two upper petals almost black, the others being rosy purple. Mr. G. Smith, Edmonston.

A cultural commendation was accorded to Mr. Salter, gardener to Mr. Southgate, Streatham, for a well flowered specimen of *Cattleya Warneri*, representing a magnificent variety. The three flowering bulbs bore respectively six, five, and four flowers, all highly developed, both as regards size and colour, an admirable example of skilful culture. A similar recognition was voted to Mr. Catt, gardener to Mr. Cobb, Sydenham, for a variety of *Epidendrum vitellinum* named *Cobbianum*. The spikes, two in number, were tall and erect, and bore numerous highly coloured flowers, and the unusual tendency of the spikes to branch was also noticeable.

Among a group of choice plants from Messrs. Veitch were *Isora salicifolia floribunda*, *Dracena Laingi*, *Adiantum falcifolium*, *Dendrobium Curtisii*, a new species in the way of *D. secundum*, *Phalenopsis samatrana sanguinea*, *Sarracenia porphyroreura*, a handsome variety in the way of *Cheloni*: *Rhododendron Duchess of Albany*, *Impatiens Sultanii*, a new species of *Balsam* from Zanzibar, and several new varieties of *Gloxinia*.

Besides the Orchids certificated, Sir Trevor Lawrence showed *Vanda limbatata*, a very pretty

Orchid, a miniature, we might say, of the true *V. insignis*, the labellum being a deep rosy pink, the sepals brownish chocolate; also *Calanthe sylvatica*, a newly introduced species, but which does not possess much to recommend it. The plant shown bore a slender spike a yard or so long, having about three dozen blossoms, creamy-white, with the lip furrowed with purple. A plant of the pretty *Masdevallia towarensis* from Mr. G. F. Wilson showed what good culture can do for this Orchid. It bore five spikes each with three flowers; consequently the small plant was a mass of white.

A group of new tuberous Begonias from the Stanstead Nursery, Forest Hill, included some wonderfully fine varieties. Besides the variety certificated there were *Madame Comasse*, a double form, with huge rosette-like flowers of a beautiful flesh-pink; *Glory of Stanstead*, another double, with fine, rich crimson blossoms and elegant habit of growth; *Madame Stella* and *Amy*, two very fine single-flowered varieties, particularly the former, whose large flowers are rosy pink and abundant. Besides these a gathering of cut blooms came from the same nursery, all of which showed to what perfection the tuberous Begonia had attained.

A new Golden Feather, under the cumbrous name of *Matricaria eximia nana crispata aurea*, was exhibited by Mr. Hugh Gower, Tooting Nursery. It is an excellent variety, much superior to the ordinary form, being like the finest curled *Parsley*, but of a bright golden yellow, a colour it is said to keep throughout the season. It is dwarf and tufted in growth, and we should say it is an admirable plant for bedding purposes. A variegated-leaved Birch came from Mr. Geary, Eggesford, N. Devon, but if it does not attain a more decided variegated condition than that in which it was shown, its merits will not be of a very high order.

A choice group of hardy flowers from Mr. T. Ware, Hale Farm Nursery, Tottenham, made an attractive display, and of a character not often seen at these meetings. It included among *Lilies*, besides the new one certificated, *Lilium pardalinum*, *parvum*, the true pomponium; the pretty little *L. pulchellum*, and the handsome *L. colchicum*. *Orchis foliosa* was shown in numerous variety, one with a long spike of deep purple flowers being particularly fine. *Cypripedium* spectabile the North American *Moccasin* flower, was likewise shown very fine; also *Bomarea oculata* and a few varieties of choice *Pinks*. Cut blooms of new seedling Ivy-leaved *Pelargoniums* came from their raiser, Mr. George, Putney Heath. They were named *St. George*, a beautiful rose-pink; *Mrs. George*, a sport from *St. George*, and *Masterpiece*, a seedling from *Mrs. George*, one of the finest Ivy-leaved kinds yet raised, the flowers being large, of circular shape, and of a beautiful rich carmine-crimson colour. This variety bears unmistakable proofs of its hybridity with the zonal type of *Pelargonium*, particularly in the foliage.

A *Pelargonium* of the *Regal* type, named *Lady Brooke*, shown by Mr. Stacey, Dunmow, is a beautiful sort, of a colour not common in this type, being of a vivid rosy purple, beautifully shaded. A bright display of cut flowers, from Messrs. Cannell, of Swanley, consisted chiefly of double *Petunias*, representing, we imagine, every variety extant, there being some three dozen sorts shown, and about half-a-dozen blooms of each. Every variation, from pure white to the deepest purple-crimson, was represented, and one had a singular green edge. All were large and perfectly double, and the majority beautifully fringed. With these were cut flowers of *Begonias*, *Fansies*, *Ranunculi*, all of the high quality usually shown by these exhibitors.

Messrs. Vervaeck & Co., Mont St. Amand, Ghent, Belgium, sent a plant of *Bolleea celestis* attached to a block, and bearing eight flowers from two healthy breaks, and a plant of a fine variety of *Odontoglossum nebulosum*, with beautifully potted flowers. Another foreign contribution was

that of a flowering plant of a new Bromeliad, named by Prof. Morren, of Liege, Tillandsia Furstenburgi, and exhibited by Herr Hofgartner Hirschhoff, Royal Gardens, Baden. The plant resembles Bromelia Karatas in foliage, while the spike is short, thick, and erect, and furnished with numerous rosy pink bracts.

Fruits and vegetables.—There were but very few exhibits of these submitted to the committee. Mr. Parr, gardener to Mrs. Russell Stargis, Givon's Grove, Leatherhead, was awarded a cultural certificate for as fine a dish of Sir Joseph Paxton Strawberry as we have seen this season, being excellent in every way. The same exhibitor also showed a good dish of Brown Turkey Figs. A Melon, named Newton Court, was sent by Mr. Carmichael, gardener to Mr. J. H. P. Oakes, Newton Court, Bury St. Edmunds. It is a round, green fleshed variety of delicious flavour, but the committee wish to see it again, as the fruit was deformed. Messrs. Sutton, Reading, sent some excellent samples of their Late Queen Broccoli, which is as fine as a Broccoli could well be, the heads being very large, white, close, and well protected. Two varieties of Parsley came from Messrs. Carter, High Holborn—one called Carter's Perpetual, the other Carter's Fern-leaved, the latter being particularly remarkable for its beautifully crisped and finely cut foliage. A vote of thanks was accorded to Messrs. John Hamblin & Co., Wood Green, for some excellent dishes of Mushrooms and a quantity of spawn, of which they are the makers.

Evening fête.—The unpropitious state of the weather militated considerably against the success of the annual evening fête, though there was ample room to accommodate the visitors in the spacious conservatory and arcades, the latter being well filled with displays of plants and flowers of a varied character. Messrs. Veitch sent a highly interesting group of plants, in which were a good many insectivorous plants, such as Nepenthes, Sarracenias, Darlingtonia, Cephalotus, and Droseras, all of which were of more than ordinary interest, and the whole group, being interspersed with plants both fine-foliated and flowering, was a conspicuous feature. Mr. B. S. Williams also sent a choice miscellaneous group of plants from Upper Holloway, consisting for the most part of large fine-foliated plants, such as Palms, Dracænas, Crotons, Ferns, Fitcher plants, the whole forming an attractive group. A large display of cut blooms was shown by Messrs. Barr & Sugden, consisting chiefly of Pyrethrums, Pæonies, English and Spanish Irises, Poppies, Ixias, and numerous interesting plants, which altogether made a bright and attractive group, as did also a group of cut Pæonies from Messrs. Hooper, which were tastefully arranged with Palms and Ferns. Mr. Charles Noble exhibited some large bushes of new Rhododendrons, one named Charles Noble being particularly fine. A group of fruit trees in pots from Messrs. Rivers, Sawbridgeworth, was an unusual feature, the Nectarines, particularly Lord Napier, being especially fine. Among the dinner-table decorations, which were but few, there were some pretty arrangements, particularly those which were not of the conventional "trumpet" style. In some cases there was a too free use of the low-toned Spanish Irises, which, though beautiful, are monotonous if used in excess. The space the arcades not taken up by exhibitors was occupied by extensive groups from the society's garden at Chiswick, and the way Mr. Barron had them arranged was highly creditable. The chief of these were groups of Pelargoniums, Mignonettes, Begonias, Marguerites, Oleanders, Heliotropes, Gloxinias, all intermixed with just enough foliage, such as Ferns, Palms, &c., to balance the glow of colour and lend elegance and lightness to the groups. The whole of the floral display seen by the electric light was very beautiful, the colours and shadows being brought out vividly. The following medals were awarded: A silver-gilt Knight to Messrs. T. Rivers & Son. Silver-gilt medals to Messrs. J. Veitch & Sons, C. Noble, Barr & Sugden, Phillips & Pearce, and W. Wood.

Silver Banksian medals to Messrs. W. Brown, W. Wood, Memon & Cornish, and Hooper & Co. Bronze Banksian medals to Messrs. J. Aldous and Mortlock & Co.

Scientific committee.—Rev. M. J. Berkeley in the chair. Hollyhock fungus.—The chairman showed stems of the Hollyhock unusually badly affected with this pest, as also with another parasitic fungus (Fusicopium). Mr. Berkeley suggested that the spores might have been introduced with the seed. Red stained timber.—The chairman showed portions of the old timber taken from a mud-walled house in Northamptonshire stained bright crimson by a fungus, probably Sphaeria rhodobapha. Hybrid Dipladenia.—A correspondent from Newport, Monmouth, sent flowers of a very lovely Dipladenia of a pale rose-pink colour, concerning which the committee was anxious to receive further information. Disease in Cabbage leaf.—From a Dublin correspondent were sent specimens of a Cabbage on the under surface of the leaves of which on the nerves were numerous small pimples of cellular tissue ultimately cracking down the centre, the edges of the fissure being everted and dry. Dr. Masters described the anatomical structure, and attributed the disease to the probable action of a mite, though he had not discovered any such insect nor any trace of fungus. Disease in Abies amabilis, &c.—Dr. Masters showed specimens of the gouty knobs which so often deform the branches of A. nobilis and other conifers, and described their anatomical construction. No new tissues were formed, but the cells and wood fibres were much enlarged, disassociated and relatively destitute of thickening characteristics similar to those described by Prillieux in the case of the American blight in the Apple. The disease in question is indeed produced by a similar insect, and is generally considered incurable; nevertheless, Mr. Barron of Elvaston Nurseries, Borrowwash, had succeeded in overcoming the disease by the use of Fir-tree oil, which killed the insect and allowed of the growth of new wood. Thuja Lobbi and T. gigantea.—The Hon. and Rev. J. T. Boscawen brought fruiting specimens to show that T. Lobbi of gardens was distinct from T. gigantea. Iris fungus.—Mr. Lynch, of the Cambridge Botanic Garden, sent specimens of Irids affected with this fungus, with notes thereon by Mr. Berkeley. The specimens were referred to Mr. W. G. Smith for further examination and report. Plants, &c., exhibited.—Dr. Masters showed specimens of the bark of the white Pine of China (P. Bungeana) from Mr. Kinghorn's nursery at Richmond, showing the bark peeling off in flakes like that of the Birch or Plane, which is one of the characteristics of that species. From Mr. Barron's, Elvaston Nurseries, Borrowwash, came specimens of Pinus contorta, Picea ajanensis, Pinus tabuliformis (referred by Dr. Masters probably to P. Massoniana, of Lambert), Larix leptolepis, the Japanese Larch, and Acer nikoense, a Japanese Maple with palmate leaves and long, slender racemes. From Herr Kirchhoff, of the Royal Gardens, Donaueschingen, came a fine plant of Tillandsia Furstenbergi, an acaulescent species with tufted glaucous leaves, dilated at the base, linear loriate, channelled on the upper surface, and finely toothed on the edges. The flower-spikes erect, thickly beset with beautiful rosy lanceolate bracts, which are covered with a whitish meal.

Pelargoniums and Geraniums.—A discussion arose the other day as to which were Pelargoniums and which Geraniums. The question lies between those red and sometimes white flowered plants that one makes ribbon and carpet bedding of, with rounded edged leaves, and those plants with serrated leaves that one never sees except in a greenhouse. They are both commonly called Geraniums, but what are they really? J. R. H., Blairhill. [Pelargoniums usually have irregular flowers, and the number of stamens varies from seven to four. The Geraniums have regular flowers and ten stamens. Both the sections to which you allude are Pelargoniums.]

The Botanical Gardens in the House of Commons.—Mr. Broadhurst asked the First Commissioner of Works whether he would use his influence with the council of the Royal Botanic Society to induce them to make arrangements whereby the public could have access to the Botanical Gardens and ground of that society situated in Regent's Park. Mr. Courtney.—My right hon. friend has no relations with the Royal Botanic Society in its official capacity. That society occupies its grounds in the Regent's Park under a lease from the Commissioner of Woods, which does not expire until 1901. It is under covenant to use the premises as a botanic garden, but Government has no power during the present lease to compel the society to admit the public to the grounds.

Parks and public gardens of Paris.—The budget of the Paris municipality contains provisions for the maintenance of the parks and public gardens of that city, the annual cost being estimated at rather less than £9000, this being exclusive of the wages paid to the park keepers in the Bois de Boulogne and the Bois de Vincennes, who number nearly 100. The area of the principal of these parks and gardens is as follows: The Bois de Boulogne, 1880 acres; the Bois de Vincennes, 1790 acres; the Buttes Chaumont, 66 acres; the Place du Trocadéro, 51 acres; the Parc Montsouris, 42 acres; the Champs Élysée, from the Place de la Concorde to the Rond Point, 404 acres; the Avenue du Bois de Boulogne, 263 acres; the Parc Monceaux, 19 acres; and twenty-two small squares formed since 1852, 263 acres.

Exhibiting.—Will some reader of THE GARDEN kindly answer the following question: Is a man who grows for market, and supplies the trade and private buyers to be classed as a gentleman's gardener or as a nurseryman, taking into consideration that he lives on a gentleman's estate? I ask this question in reference to a case of showing.—CONSTANT READER.

Red Spirea.—How should I treat this to induce it to flower?—WARWICK.

Asparagus scandens.—How should this be treated? I have a plant of it which produces shoots about 4 ft. long, but which fails to flower.—A. B.

Lilium giganteum.—I have this fine Lily in flower just now. Would some of your correspondents who have flowered it state the largest number of blooms produced on a stem? Ours has seventeen.—EVEN CAMERON, Eriestane, Moffat.

Ranunculuses.—A friend of mine has just brought me some tubers of choice sorts of Ranunculus from Florence. May I ask advice as to how best to treat them? Shall I plant them at once? or keep them in a dry, cool place till next February?—W. J. T.

Roses.—How can I induce Roses in a conservatory to bloom? They grow well, but flower very sparingly, especially Marchal Niel and Devoniensis.—WARWICK.

Spirea Reueel.—A pretty little double sort, not very effective, and perhaps requiring some care to secure its full development. From Mr. Stevens.

Stem-roots on Vines.—What am I to do with two of my Vines which are throwing out strong stem-roots a every fruiting joint? Shall I cut them close off?—T. W.

Diseased Grapes (T. S., Chischurst).—There is no fungus on the Muscat Grapes sent. They appear to be slightly cracked and rusted. There is probably something wrong in the culture, but one can only make guesses, perhaps wrong ones, when no information as to circumstances is given.—J.

Names of plants.—T. R.—Scilla peruviana var.—A. D. Webster.—Orchis pyramidalis. The single flower is O. militaris.—F. G.—1, Kalmia rubra; 2 and 3, varieties of 1; 4, Rhododendron myrtilloides; 6, Melia Azedarach.—H. J. G.—1, Gnaphalium arenarium; 2, Veronica Teurium; 3, Saxifraga sarmentosa.—A. B. Thymus.—Onobrychis sativa.—Bousses.—Odontoglossum tripudians.—E. C.—Apparently Thalictrum aquilegifolium.—Old Sub.—1, Lychnis Viscaria fl.-pl.; 2, Veronica Teurium variety; 4, Silene sp.—W. C.—We never name varieties of florists' flowers. We advise you to send the Pelargonium to Messrs. Cannell, Swanley, Kent.—A. G. T.—1, Nepeta Mussini; 2, Geum rivale; 3, send others when in flower.—J. Carter.—1, Athyrium angulare; 2, Athyrium Filix femina; 4, Athyrium Filix-femina variety; 5, Aspidium Filix-mas cristatum.

No. 553. SATURDAY, JUNE 24, 1882. Vol. XXI.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

SUMMER NOTES ON HARDY PLANTS.

AFTER a fortnight of rainy weather the few days of warm sunshine have revived our gardens, and they are now putting on the glorious tints of summer bloom. The large scarlet Poppies, *P. bracteatum* and *orientale*, are grand, and make the whole garden gay both near and far. With these we have grouped at intervals large clumps of the grandest of all the early Lilies, *L. Thunbergianum*, *sanguineum*, and *umbellatum*, which flower most abundantly and vie in their deep orange and bright scarlet with the big Poppies. I know of no floral display equal to this, and we have planted a portion of the garden purposely, with a few other quieter flowers to fill up the spaces, such as *Pyrethrums*, *Irises*, *Delphiniums*, and *Roses*, so that altogether there is now a wealth of colour in great contrast to the spring bloom we enjoyed a month ago.

CAMPANULAS are now beginning to be interesting. We have tried several for earlier blooming in the cool greenhouse, and find that all the varieties of *C. persicifolia alba* are beautiful objects and most useful both for display and for cutting at this season. They grow quite 4 ft. high in 9-in. pots, and remain in bloom fully a month. The flowers are larger and more delicate than when in the open borders. Associated with scarlet *Pelargoniums* the contrast is excellent and effective. We have several varieties of *C. persicifolia alba* in the borders, where also it is a most valuable plant for summer bloom where scarlets and purples abound. On the rockeries many of the lesser *Campanulas* are now blooming. *C. pulia* has the deepest purple of all, and its deeply ribbed bells are quaintly pretty. *C. Portenschlagiana* (Miss Owen's favourite) is exceedingly floriferous, forming bosses of lovely purple bells with deeply-cut margins; its compact, low habit of growth makes it a singularly lovely rock plant. *C. garganica* has a much more rambling habit, but with its beautifully marked flowers it is quite as interesting. Its prettily formed bells are much more widely spread, and have light centres, with a distinctly marked line of dark violet through each pale purple petal. *C. barbata*, the Bearded *Campanula*, is well named, and a most curious variety. We have both the purple and white, and each has its bell flowers thickly bearded over with white hairs, giving it a very quaint appearance. Our plants are from 1 ft. to 2 ft. high. Of the larger sorts *C. grandis* and *C. grandis alba* are effective objects if placed where their spreading habits are not objectionable, and the same may be said of *C. glomerata* and its white variety. These are all grand *Campanulas*, and most valuable for distant effects.

Francoa ramosa is another of our stately border plants. It grows quite 5 ft. high with slender spikes of delicate pink flowers with deeper pink centre. Its leaf is also pretty, as it becomes pink edged as the plant matures. The *Geraniums* are also grand border plants when placed so as to admit of full development. Nothing can be lovelier than a large mass of *G. ibericum*, with deep violet flowers; *G. armenium*, with deep magenta; and the rich pink varieties, *Endressi*, *striatum roseum*, &c. The *Cistus* tribe are also now in full beauty on sunny days, and although their flowers last only for a single day, yet they are always to be found when the weather is favourable. *Cistus*

has large flowers of the richest carmine-pink, fully 2 in. in diameter; *C. algarvensis* has similar flowers of a pale yellow with deep crimson centres; and *C. lusitanicus* has pure white flowers with purple centres. These are three of the loveliest of rock plants, and should be in all good collections. The *Helianthemums* (Rock Roses) are also at their best, and cover large spaces completely over with their rich blossoms of white, yellow, orange, pink, and scarlet. We have used them extensively for edgings where tile borders are employed, and they cover the tiles completely with excellent effect.

Of *Dianthus*es, the best with us are *D. Gardnerianus*, which is on the limestone rockery, one mass of the brightest scarlet; and in the borders *D. Napoleon III.* is also of the most vivid scarlet. The Mule Pinks and *Lychnis Viscaria splendens* also help to make us gay, as also the *Geums*, single and double scarlets. I think the single form of these is the best. *Primula rosea* is coming into flower again, and even better than it was in the early spring; *P. capitata* is also in bloom. *Roses* promise well this year, but late; our first border *Roses* are only in flower this week for the first time.

Didsbury.

BROCKHURST.

TOWN GARDENING.

A NOTE, as promised, on a few things that have done well with me in London. I mentioned to you before the pretty *Viola pedata* bicolor; it continued to bloom freely long after I had written to you about it, a charming plant for early gardening. Another plant I brought from America has delighted me—*Silene virginica*. Its free blooming property and the very brilliant crimson-scarlet of its blossoms have made it most useful during the two past months. I should be very sorry to lose it. A variety of *Camassia*, also from America, has given splendid spikes of bloom of a delicate greyish mauve. This plant is valuable from its gradual blooming and handsome appearance. *Erythronium albidum* has also rewarded me for bringing it over; its delicate white and yellow blossoms are freely produced, and remain a long time in bloom. A dwarf early *Aster* with large mauve blossoms seems excellent for rockwork; *Iris caurina* is good in form and very pretty in colour, and its blooms last well; *Dodecatheon Jeffreyi* and *D. Meadia* have done very well, remaining in bloom an unusually long time. Two *Veronicas* that I find very useful are *V. rupestris* and a variety of *V. pectinata*, with delicate pink blossoms; they have both bloomed freely and constantly. Are we now to call *Milla laxa Brodiaea*? It is blooming very finely with me together with its sister *Brodiaea congesta* and *grandiflora*. *Campanula Van Houttei* is first-rate, its large handsome trumpet-shaped blossoms being very conspicuous. The *Gentian* of which I brought seed from the top of the Colorado mountains is growing freely, and I hope may prove to be something useful; and many other seeds brought by me from various parts of Colorado are all doing well. To read of "St. Bridgid's" *Anemone* seed in THE GARDEN of June 3 makes one's mouth water; but is it not rather like Mrs. Glasse's advice as to cooking a hare, "first catch it?" I have more than once tried getting *Anemone* seed, but nothing worth keeping ever resulted. Talking of *Anemones*, *A. caroliniana* is very pretty and worth growing. I have cut my remarks as short, as possible, knowing the value of your space. By-the-by, one note as to colour. One perfectly beautiful combination I have now in bloom consists of pale pink Foxglove against deep blue *Delphiniums*, and the effect is unusually good. With regard to your remarks on

autumn sowing of annuals, a good article on the subject is much wanted. Few know which annuals do best sown in autumn or when to sow them. Perhaps some of your readers will supply the information.

H. STUART WORTLEY (Colonel).
Rosslyn House, Grove End Road.

HERBACEOUS PÆONIES.

In his catalogue of hardy plants, Mr. Robert Parker in speaking of *Pæonies* says, "These occupy the first rank amongst herbaceous and decorative plants," and assuredly no other class of hardy plants so well merit such a remark, and, moreover, nowhere that we know of in this country can *Pæonies* be seen in such splendour and variety as in Mr. Parker's nursery at Tooting. Here they are just now in their highest beauty, so beautiful, indeed, that one cannot see them without thinking how surprising it is that they are not to be met with in every garden. The old *P. officinalis*, the common kind, is handsome enough, but what is it compared with the exquisite beauty that is to be found among the majority of the fourscore of varieties represented here? To Frenchmen, and particularly, we believe, to that indefatigable hybridist, M. Lemoine, of Nancy, we owe the greater portion of the varieties of *Pæonia* which we now possess, the climate of many parts of France being better suited to the successful seeding of *Pæonies* than our own. The Tooting collection shows well the capabilities of the plants, for every plant is well grown, though they number several hundreds. Many of them measure from 3 ft. to 5 ft. through, and bear a score, or even more, of huge flowers, representing every colour from the purest white to the deepest crimson. In some there is a mixture of tints, the large outer or guard petals being dark, while the rosette of inner petals is of a lighter shade. Some possess such a delicacy of tint, as to surpass any other flower we know, and this is more particularly the case with the blush coloured flowers. Not the least important characteristic of these hybrid *Pæonies* is their delicious fragrance, which, in some instances, is similar to that of *Tea Roses*. To grow *Pæonies* well, they require a good soil well enriched with manure and abundance of water during dry weather.

As a guide to intending cultivators of these plants, we append a representative selection made from the plants now in bloom at Mr. Parker's: *Alba sulphurea*, pure white, very double; *Alice de Julvecourt*, guard petals delicate pink, centre a fine bluish white, slightly flaked with crimson-purple; *Ambrose Verschaffelt*, brilliant reddish purple, very double; *Artemise*, guard petals rosy pink, centre petals delicate rose and bluish white; *Beauté de Villecande*, purplish rose, with delicate pink centre, very double; *Belle Douaisienne*, bluish centre, petals sulphur, tipped with white and margined with puce; *Bossuet*, glowing purplish rose, large, and very double; *Candidissima*, guard petals pure white, base of centre florets primrose, very double; *Carnea elegans*, delicate pink, changing to white, very large and double; *Caroline Allain*, guard petals beautiful bluish, centres of flowers sulphur tipped with white; *Clarisse*, rosy pink, with delicate pink and white centre, large and fine; *Dr. Bretonneau*, outer petals rich satiny rose, centre petals bright shiny pink, edged with light pink and white; *Eteudard du Grand Homme*, brilliant rosy purple, flowers very large, beautiful in form, very double, fine in habit, and a free bloomer; *Eugénie Verdier*, rosy pink with bluish centre, flowers large, very double; *Faust*, bluish white, large and double; *Festiva maxima*, bluish white, flaked with purple flowers large, fine; *Gloire de Douai*, deep crimson flowers, semi-

double, showing golden anthers in the centre; Gloria Patrie, pink with light centre; Isabelle Karitzky, glowing purplish rose, very large and double; Jeanne d'Arc, rosy pink with white centre; Lucrèce, guard petals rosy peach, centre petals white; Madame Calot, pure white, tinted with rose on guard petals, large, and very double; Mme. Furtado, guard petals deep rosy purple, centre petals rose tinted with lilac; Mme. Lebon, rich purplish rose with light edges to petals, flowers double; Mme. Lemoine, outer petals delicate pink, centre petals creamy white, with yellow centre; Mme. Serret, creamy white, suffused with chamois; Magnifica, delicate pink, changing to bluish white, large, and very double; Marie Lemoine, guard petals, delicate rosy bluish, centre petals creamy white, with conspicuous golden-yellow anthers in the centre; Marquise de Lory, pure white, base of petals delicate primrose, slightly flaked with carmine; Modeste, guard petals rich rosy purple, centre petals rich rose; Mons. de Villeneuve, rich satiny purplish rose, edges of petals delicate lilac; M. Rousselon, guard petals rosy pink, centre petals delicate rosy pink, slightly flaked with carmine; Nivalis, guard petals rosy pink with bluish margins, centre Anemone-formed, creamy white suffused with delicate rose; Nivea plenissima, pure white; Prince de Salm Dyck, rosy pink with light centre; Prince Troubetzkoy, bright purplish lilac, edges of petals pale lilac, base of petals bright crimson; Reine des Roses, guard petals beautiful salmon-rose, centre petals delicate rosy lilac and white; Rosamond, bright rosy pink, edges of petals delicate rose, very double; Rosea plenissima superba, bright rose, edges of petals bluish white, flowers large and very double; Souvenir d'Auguste Mieliez, rich crimson-purple, flowers large, fine in form, abundant and late, continuing long in perfection; Souvenir de Gaspar Calot, bright purplish rose, edges of petals margined with delicate pink and bluish white, flowers very double; Souvenir de l'Exposition Universelle, rich shining rosy pink, edges of petals tinted with white; Surpasse Pottsi, purplish crimson, large and double; Triomphe de Paris, guard petals delicate bluish, centre flowers primrose tipped with white; Vicomte de Forceville, bright rosy pink, edges of petals delicate rose, large, and very double; Victoire d'Alma, rich purplish crimson, very double; Virginie, bluish, suffused with rosy pink, flowers large, very double, and abundant. These comprise the cream of the collection, all being abundant bloomers and, as the descriptions show, very lovely in colour. W. G.

ORCHIDS.

ORCHIDS AT UPPER HOLLOWAY.

ANYONE fond of Orchids might spend a pleasant hour or so in the Victoria Nurseries, in which Mr. B. S. Williams has just now a grand display of plants in flower. The reason why the show of Orchids is more important this season than hitherto is because Mr. Williams has abandoned for the time being the practice of sending his plants to public exhibitions, the result being a much richer and finer display at home. There can be no doubt that the withdrawal of this and similarly fine Orchid collections from the London and other great shows detracts much from their attractiveness; but, on the other hand, though the habitual visitor to flower shows may be the loser, those who love Orchids have a far better opportunity of inspecting the plants in nurseries than at shows. The plants, too, are gainers in many ways; they are healthier in appearance and show themselves to far better advantage in the houses in which they are grown than elsewhere. The collection here is stamped throughout with that healthy look that only a skilful cultivator

can impart to them. The plants in bloom, comprising for the most part fine specimens, make an attractive display in three of the houses—the cool, intermediate, and tropical or East Indian.

The intermediate house is aglow with a wealth of bloom produced by Cattleyas, Lælias, and Cypripeds chiefly, all being arranged so as to display the character of each plant to the greatest advantage. The gorgeous *Lælia purpurata* may here be seen in all its beauty, there being, one would imagine, every variety of it, including one of the finest white-sepalled forms we have ever seen. This has broad, pure white sepals, which do not reflex so much as usual, and the apical labellum is of the richest crimson-purple colour, pencilled and streaked beautifully; the plant of this magnificent variety bore five spikes and five flowers on each. The variety *Williamsi* was in perfection, and as seen here is certainly one of the finest, the flowers being large and the sepals suffused with a delicate rosy pink, while the large lip is of a rich crimson. Another variety is remarkable for its uncommonly large labellum, measuring fully $2\frac{1}{2}$ in. across. Between the normal form with purple sepals and the pure white sepalled form is one having the faintest suggestion of rose in the broad sepals which makes a very charming variety. These plants of *L. purpurata* are in themselves quite an exhibition, as they are such fine specimens. Among the Cattleyas was a richly-coloured form of the glorious *C. gigas*, one of the finest in this respect we have seen, the labellum being of a glowing crimson-purple and most beautifully crisped. Of Cattleya Mendelli, too, there are some superb varieties, one in particular being remarkable for the large, deep, amethyst labellum, exquisitely fringed at the margin. In this collection there is ample material for the study of one of the most variable of all Orchids, *C. Mossiae*, of which there is a very fine display, some of the specimens bearing a score or more of flowers. It is impossible to describe the varied hues and distinguishing colours of the host of forms of this Cattleya, for not two are alike. One of the finest forms of *C. Mossiae* we have seen was in flower on the day of our visit. It was remarkable for its very large lip and the beautiful pencillings that traverse it. Another called *Yates' variety* is a lovely form, as is also another called *aurea*, with an unusual amount of orange-yellow on the labellum; in fact, every intermediate form appears to be represented between the very dark and very light varieties. Cattleya Warneri, one of the grandest Orchids in cultivation, is seen to perfection, and we measured one flower over 8 in. across, and of a very rich crimson-purple. The crowds of flower-sheaths that are being developed indicate that for some time to come the Cattleyas will be a great attraction.

The Vandas in the East Indian house are perhaps beyond all others in interest, for a finer collection it would be difficult to name. On entering this house the noble appearance of the stately specimens, some over 5 ft. high, is very imposing, and the numerous spikes of bloom stretching out away from the foliage lend an air of brightness to the house. Since the beginning of the year this house has been attractive by more or less flower, but now it is particularly so. The principal kinds in bloom are *V. suavis* tricolor and its varieties *formosa* and *insignis*. The latter is a superb variety, the rich colour of the labellum and the copious spotting of the flowers rendering it distinct from all the rest. As many as eighteen flowers are produced on some of the spikes, and two and three spikes to a "break," a sufficient proof of the good culture Vandas get here. It is not often one meets with a collection of Vandas that possesses such a uniform healthy appearance, with leaves from the base to the top without the disfiguring leaf blotches so prevalent among this class of Orchids. Among the other species of Vanda was a grand specimen of *V. Batemani* in flower, the tall rigid spikes of which were a contrast to the gracefulness of the others mentioned. With the Vandas are associated the *Aerides*, *Scaccolabiums*, and among these we noted a flower of the beautiful *A. virens* Ellisii, a very fine variety, remarkable for

the great length of spike, large flowers, and their clear colour. The delicious aromatic perfume so characteristic of all the *Aerides* quite perfumed the whole house. The long wreaths of the Fox-brush Orchid (*A. Fieldingi*) were very lovely, and rarely have we seen finer examples likewise of *A. crispum*, one of the finest in the genus, particularly if represented by such a highly coloured variety as *Lindleyanum*. In the course of a week or so there will be a bright show of bloom again of many other kinds, judging by the crowds of spikes that are being developed.

The cool house is attractive, as it usually is, there being quite a thicket of spikes of *Odontoglossum crispum*, representing that lovely species in its finest form, with long, arching spikes carrying those large, full flowers beautifully crisped at the margins which everyone admires so much. Among the varieties one called *Horsmani* is much the richest spotted, the deep chocolate blotches being very profuse, and the plant altogether has a very pleasing appearance. Other noteworthy *Odontoglossums* are *Pescatorei*, *nebulosum*, of which there are other beautifully spotted varieties; *O. vexillarium*, also in variety; *O. Roezli* and the white variety *O. leopardinum*; and *O. citrosimum*, of which there is a magnificent variety, the finest we have seen, having very large blossoms copiously spotted, and the waxy white flowers suffused with rose. *Masdevallias* are, of course, one of the chief attractions in the cool house, and among the forms of *M. Harryana* may be seen the true Bull's Blood variety, a plant from the original stock, and the variety *læta*, remarkable for its very broad flowers and brilliant colour. The variety *lilacina* is likewise very pretty, being of a pale lilac pink colour with a white centre. *M. Shuttleworthi*, *M. ignea*, of which there is a massive plant 2 ft. across, *Lindeni*, *Veitchii*, and various others are in bloom.

Among other noteworthy Orchids in bloom are *Cypripedium Spicerianum*, the handsome Lady's Slipper about which so much has been said and written; *C. superbiens*, very fine examples; *C. Stonei*, *levigatum*, *Swanianum*, *caudatum*, one plant with seven flower-spikes; *Thunia Bensonae*, a lovely Indian Phaius-like Orchid, with large, rich, purple blossoms; *Galeandra Devoniana*, a handsome species not often seen; and *Bollea celestis*, including a fine healthy plant on a block, a most unusual way of growing this Orchid. W. G.

NOTES ON ORCHIDS IN FLOWER.

Sobralia xantholeuca.—At the Royal Exotic Nursery, Chelsea, this and the under-mentioned Orchids are among the most noteworthy at present in flower in this collection. This *Sobralia* is really a handsome plant, undistinguishable from the commoner *S. macrantha* when not in flower, but considerably dwarfer in growth than the ordinary forms of that species. The blossoms are produced from the apex of the stems in much the same way as in *S. macrantha*, and quite as large. The colour of the sepals is a pale lemon-yellow, while that of the large crimped edged labellum is of a brighter and deeper shade of yellow. Hence it may be gleaned that it is a very distinct Orchid, dissimilar from any other with which we are acquainted, and one that will inevitably be much sought after. It is a good grower and flowers freely. The different forms of *macrantha*, particularly the one with an uncommonly broad and richly-coloured labellum, are likewise very fine in this nursery.

Cattleya bulbosa, flowering on suspended blocks, is a strikingly pretty Orchid, and one, moreover, not of the ordinary stamp. It is a dwarf-growing plant, having short, club-shaped bulbs and leathery leaves. The flowers, which are some 4 in. or 5 in. across, are bright rose, the singular shaped labellum being a shade or so darker. The plant altogether is only about 4 in. high, but nevertheless very desirable, as it remains long in flower, and is, moreover, very fragrant. It is a Brazilian species, and is, we believe, synonymous with *C. Walkeriana*. Other Cattleyas

in flower in this collection include hosts of *C. Mossiae*, *Warneri*, and *Mendelli*, and other commoner kinds, all creating a bright display.

Vanda Denisonii asserts itself very prominently amongst its associates on account of the peculiarly distinct colour of the blossoms—a delicate creamy white, slightly tinged with green. The racemes are from five to six-flowered, and the blossoms, nearly 2 in. across and firm, wax-like in texture. This rare species is not often seen so finely developed as it is here, for it is not one of the easiest to manage. The *Vanda* house just now wears a gay appearance, the majority of the less rare species being in full flower, and no finer examples of the beautiful *V. suavis* could be seen than those here, some of which have breaks bearing three spikes, and on one we counted twenty blossoms. The gorgeous *V. teres*, which has for some time been a great attraction in this house, still bears a few flowers.

Aerides formosum is another lovely Orchid, probably unique, though it comes somewhat near another species. It is supposed to be a hybrid between *A. odoratum* and *A. Larpentei*, but from both of these it is quite distinct. The flowers are borne in long, pendulous racemes, and are about 1 in. across, with a large trifid labellum of a rich deep amethyst colour, copiously spotted with a similar tint on a waxy white ground. The sepals are white, tipped with deep rose. It is certainly a lovely Orchid, whatever it may eventually prove to be, and its delicious aromatic fragrance is not its least valuable property. On *A. Fieldingi*, *odoratum*, *virens*, *Schroderi*, *affine*, *crispum*, and other species and varieties there will shortly be a fine show of bloom, and at present there are beautiful flower-spikes on *A. Huttoni* and *A. crassifolium*, the latter one of the handsomest of the genus.

Among other Orchids of an uncommon character in flower at the nursery are *Steinia fimbriata*, a pretty and singular species with conspicuous transparent flowers of a pale yellow colour and beautifully fringed; *Massevalia Shuttleworthii*, an uncommonly well-grown specimen bearing a dozen fine blossoms; *Phalanopsis violacea*, one of the newer species, and very handsome; *Broughtonia sanguinea*, a sweetly pretty Jamaica Orchid with deep rose blossoms on long slender stems; *Anguloa Ruckeri sanguinea*, one of the noblest of all Orchids, and very singular withal; and among the hybrid *Cypripedium* which abound here is *C. superciliale*, one of the handsomest of all, and, moreover, one of the most prolific flowerers.

W. G.

Orchis foliosa.—Never till this season have we had the opportunity of seeing the real beauty and value of this hardy terrestrial Orchid so long introduced from Madeira. A large bed of it still in full beauty of flower in the Hale Farm Nursery, Tottenham, shows well what a fine thing it is. Here there are hundreds of flower-spikes, some very large, fully 6 in. in length, and ranging in colour from a deep plum-crimson to almost white, the intermediate hues of rose being particularly pleasing. There is considerable diversity, too, with regard to the markings of the flowers; in some they are much more pronounced than in others. The decidedly pyramidal shape of the dense flower-spike and the taller growth is sufficient to distinguish the species at a glance from *O. latifolia*, which is likewise very fine in this nursery. The bed of *O. foliosa* consists of a deep, moist peaty soil, and is situated where it is partially shaded by trees, while a dense hedge completely enveloping it shelters it when in flower from high or cold winds, which are liable to damage it. There are few more desirable plants than this Madeira Orchid for planting in a sheltered nook in the garden.—W. G.

SHORT NOTES.—ORCHIDS.

Orchids.—*T. S.*—If you will kindly send us any practical hints on Orchid culture we will gladly publish them, but your present communication has no interest for the general reader.

EDITOR'S TABLE.

DIGITALIS CANARIENSIS.—Curious and poor.

STACHYS COCCINEA.—Distinct, but of no garden value.

CRATEGUS PUNCTATA.—A Hawthorn, with an offensive smell.

SYMPHYTUM OFFICINALE FOL. VAR.—Useless in the cut state, and very ugly in colour.

ACHILLEA MACROPHYLLA.—A fair example of the weedy rubbish often sold as hardy flowers.

DIANTHUS HOLTZERI.—Seems a dark coloured form of the old and pretty Fringed Pink (*D. superbus*).

PEONY ARTHÉMISE.—One of the finer forms of this noble race of plants, well broken in form, and large. From Coombe Wood.

SPIRÆA ARUNCUS.—A fine form of this from Messrs. Veitch. A really noble plant with long and open plumes, very fine in effect.

IXIA VIRIDIFLORA.—Curious and beautiful. Too frail for our climate, though it may be grown with care. From Mr. Ware.

HEUCHERA ERUBESCENS.—Graceful and curious; a very gradually tapering spire of elegantly borne little flowers, nearly 2 ft. high.

CEANOTHUS ARNOLDI.—Evidently a beautiful shrub, delicate in colour, but not quite in condition to judge of; the flowers not open enough.

CORONILLA JUNCEA.—An interesting old plant, and a pretty one if well grown. The stems are rush-like, the leaves narrow, and the flowers fragrant. From Pendell Court.

INDIGOFERA DECORA ALBA.—A delicate, white-flowered shrub, which would be interesting among the pink-flowered forms of its family. The racemes of bloom are long and graceful.

PYRUS VESTITA.—The leaves of this Indian tree, 10 in. long, from Coombe Wood, no doubt from young trees. The leaves are wrinkled, shiny green above, and of a fine silvery hue beneath.

GREVILLEA SULPHUREA.—A curious yellow-flowered New Holland bush, giving one exactly the effect of some of the poorer variegated Conifers—more curious than beautiful. Coombe Wood.

BRODIAEA COCCINEA.—An elegant example of this from Mr. Ware. A very beautiful plant if well placed and well grown. It would be best perhaps growing out of groundwork of a pretty fragile alpine or rock plant.

OLEARIA DENTATA.—Like a brown-centred small Michaelmas Daisy, but with leaves and shoots like a grey Holly; an interesting and, in certain cases, effective shrub; quite distinct. From Coombe Wood (Messrs. Veitch).

DESFONTAINEA SPINOSA.—From Coombe Wood, but not strong. It seldom is so, though it is best in localities influenced by the sea air. We have seen it good in South Wales. Like a cross between a Holly and a scarlet Rhododendron.

CAMPANULA GRANDIS.—Generally thought not very highly of, but really fine as it comes from Grasmere, the bells are so bold, and the spikes so good. A very easy plant to grow, but best not starved or left too long in one spot.

BOMAREA OCLATA.—Mr. Archer-Hind sends an umbel of this *Bomarea*, not because it is new, but to show that it is quite hardy, having been on an open border in his garden in South Devon without protection for the last three years.

DIGITALIS TOMENTOSA.—A beautiful Foxglove comes from Mr. Stevens under this name; whether it is a distinct species we cannot say. The lip has long down upon it, but in effect it does not differ, so far as we can see, from the common Foxglove.

CAMPANULA PERSICIFOLIA VARS.—It is surprising how fine the varieties of these are now in country gardens. About London they take on the general tone of dimness, but in going through Surrey or Sussex now one is startled at their fine colour and size.

CEANOTHUS GLOIRE DE VERSAILLES.—A really beautiful shrub, well grown, as it comes to us from Messrs. Veitch, at Coombe Wood. The shoots are broken into many panicles of flowers, delicate, and good blue, some of the finer heads reminding one of a blue Lilac.

DELPHINIUM GEORGE TAYLOR, BARLOWI VITTATUM, EUGENE VERDIER.—These are the names of three of the most glorious spikes of the Delphiniums of the present week, all from Mr. Stevens, who really grows the Delphiniums as we have never seen them elsewhere.

NEW CARNATIONS.—From Messrs. Kelway & Son, of Langport, very striking flowers of the red and crimson varieties of *Souvenir de la Malmaison* Carnation, but still we think not having the good qualities that we notice in the type; rather too loose and ragged; we may be wrong.

LILIUM DALMATIUM.—The black Martagon a handsome and distinct Lily, which may be grown near one's house, and even brought into a room without fearing too powerful odours. It deserves to be nearly as popular as the old white Lily, which, however, still remains the queen of the tribe. From Mr. Ware.

MIMULUS GRANDIFLORUS.—Tired of the eternal and dull cupreous section of Monkey flowers (and also of the tall type), we welcome in this a good large golden kind with clear spotting of dark dots. It is said to stand all sorts of weather bravely, and to give a better effect than the *Calceolaria*.

ANDROMEDA PULVERULENTA.—A beautiful shrub; one could hardly find a better example of delicate harmony of colour—leaves, flowers, old and new stalks a delicate silvery grey. The flowers like old Lilies of the Valley and very thick on the stem. From Munstead, where it grows on a rocky bank in free soil.

ROSA POLYANTHA.—A neat, single Rose in long, cream-coloured clusters. It has become pretty well known of late, and is one of the single Roses worth having, but *R. Brunoniata* and others are, we think, more beautiful. We should like to see the really fine single Roses well grown on a stiff soil. From Messrs. Veitch, at Coombe Wood.

SENECIO JAPONICUS.—A large, yellow, hardy composite, with foliage like the Anemone-leaved Geranium. From Mr. Ware. The cup that holds the flower, so to say, is finely formed, and the plant very distinct, but most fitted for grouping with bold, hardy, fine foliated plants.

ANTHERICUM LILIAGO.—A pretty miniature Lily, and with more than the grace of most Lilies in its pure white cups. It comes in nicely after the St. Bruno's Lily, and although not a showy plant, is a beautiful one. It would be well if one could establish it among Grass, which indeed is its natural habitat. From Grassmere.

THE SIKKIM PRIMROSE.—Good and free, and with a delicate scent, from Edge Hall. A noble Indian Primrose, which we hope Mr. Wolley Dod may get on better with than even Mr. James Backhouse. With it come fine heads of the purple *C. capitata*; the two together make a fine and curious contrast, belonging, as they do, to one varied, but always beautiful, family of plants.

ORNITHOGALUM PYRAMIDALE.—A bold old hardy flower, which one likes to see coming in, the last of its race, which are mostly spring-flowering bulbs. It repays for good cultivation, *i.e.*, deep soil, and is an elegant flower for cutting. Mr. Ware sends with it the fine Arabian Star of Bethlehem (*O. arabicum*), which one never tires of, and regrets it is not as hardy as the first mentioned kind.

OLD ROSES.—The two sorts of York and Lancaster Rose, from Bittin Vicarage. Interesting when grown well, like other Roses, and effective, but they are generally starved. None of these carnation striped Roses, however, from the days of York and Lancaster to our precious bogus Beauty of Glazenwood and Peter Henderson's "American Banner," have ever "come to much."

BIGNONIA CAPREOLATA.—A fine old plant not often grown. The form we received is singularly good in colour, bronzy red outside and an orange-yellow throat. The plant commonly grown under this name is not the same as the specimen now before us, which, is as the artists say, very good in colour, a curiously fine, dull, bronzy red. From Pendell Court, where it survived last winter on a south wall out-of-doors.

CYANANTHUS LOBATUS.—Mr. Wolley Dod seems to have the art of starting interesting, but slow "old stagers" into vigorous life. Nothing we remember has lived longer on its reputation in good collections and in botanic gardens without ever making much progress than the above Indian hardy plant, of which Mr. Dod kindly sends us large and handsome Periwinkle-like blossoms from his Cheshire garden. He will, perhaps, tell us why it grows so well there.

A LOVELY ORCHID.—There are a good many curious and poor things among Orchids, and probably even the most devoted to these have had enough of the never-ending series of *Cypripediums* and *Odontoglossums*, differing by minute points only from their allies. Many of these Orchids are really poor in form and colour; there must be severe discrimination if we are to get any beyond stiff and odd effects from them. But some are lovely, and such every cultivator with a warm house should seek. *Odontoglossum Pescatorei*, as sent us by Mr. Sydney Courtland, shows what the really beautiful Orchids are capable of. It is a fair, nearly white, and delicately tinted

raceme, just the length over of a foot-rule. Mr. W. Gunn, the gardener, writes, "Some of the flowers, as you will observe, are nearly $3\frac{1}{2}$ in. in diameter and of good substance. It has been in flower for the past three months. A flower of such durability cannot be too widely known and cultivated.—*The Gardens, Bocking Place, Brintree.*" This is really a gardener's Orchid and fit to grace a queen. We wish Mr. Burbidge, Mr. O'Brien, or some of our correspondents who know Orchids well would take the trouble to severely select the Orchids which a gardener should grow as apart from the merely curious, rare, or new, above all things avoiding the many rigid curiosities which have no decorative value. We propose to figure this noble species, and for the future shall confine our Orchid plates to those species likely to be useful in gardens generally.

SPIRÆA LINDLEYANA.—On the north side of Hyde Park a number of specimens of this noble shrub may be seen starved and flowerless under the trees. Pruned and mutilated root and branch with brutal care every year, they are fair examples of the murderous muddle of the shrubbery. Is it any wonder that people pass their lives amid such arrangements, and do not know we have a rich flora of garden trees and shrubs? Comes to us from Mr. Stevens.

SWEET PEAS.—Again these are the finest things of the week, so large, and with a delicate fragrance that one does not tire of. It is well to consider how much more we get in attending to simple, good things that we know all about rather than making experiments with unknown quantities, so to say. But these Peas were autumn sown, have the stalks of the flowers 1 ft. long. Gathered with a portion of the shoot, their decorative value is very high, and they last long in water. The market Sweet Peas are gathered in ugly bunches, and the people in town admire them; they do not get their full value.

SOME BRITISH ORCHIDS from Mr. Wolley Dod are among the most charming things we have seen this season. There are five flower-spikes, including two forms of *O. maculata*—one a garden form with pale flowers, densely arranged on a spike 5 in. long; the other *O. maculata* superba, about as large, but with a colour many shades deeper, being a rich, deep rosy purple, marked with darker lines. *O. latifolia* and incarnata, both from North Wales, are likewise very fine, the former having a spike 9 in. long, and probably the stem would be 2 ft. high. These are all handsome plants, fit to adorn any garden, and as their culture is not difficult they may be grown by everyone. Had we an expert at hand, we should have tried to secure good drawings of these admirable native Orchids. We hope to do so eventually, and if Mr. Dod will allow us the opportunity we shall devote a plate to the forms of each species. The Floras with coloured plates do no justice to the plants as they are sent to us—garden grown.

Preserving insects.—Will you tell me how to preserve butterflies and beetles? Is there any book on the subject? and what is its price?—GLASGOW. [I am afraid there is no cheap book containing the information you require. "The Story of our Museum and what it taught us," published at 2s. 6d. by the Society for Promoting Christian Knowledge, contains much information that you would find useful. Beetles may easily be killed by putting them in spirits of wine or boiling water; the larger ones should be pinned through the right wing case, and the smaller ones gummed on pieces of card.—G. S. S.]

LLANDUDNO AND THE ORME'S-HEAD IN MAY AND JUNE.

OUR walk to-day shall not be quite so close to the coast-line as before, but we will turn our footsteps more inland, visit the woods and slopes of Gloddaeth and Bodscallan, and search the alluvial ground between the two bays. I shall hope to point out above a score of plants of interest to the botanist and lover of wild flowers in May and June. These may all be gathered within a radius of a few miles from Llandudno. Perhaps one of the most local and conspicuous plants near Llandudno is the yellow Figwort (*Scrophularia vernalis*), so very abundant in the woods and hedgerows of Gloddaeth and Bodscallan. It looks like a small *Calceolaria*. This rare plant has been noticed for more than a century as growing on a hedgerow in Surrey, between Merton and Mitcham. Here I first saw it. Its Continental range, according to Reichenbach, extends along Southern Europe, and it crops out occasionally so far north even as Bavaria and Saxony. It is often in flower early in April. Two of our British Geraniums occur on slopes of the Orme. They are *Geranium sanguineum* and the rarer *pyrenaicum*. Both these were in full flower when I was at Llandudno in May. They are essentially lovers of the limestone and chalk formations. We find *G. pyrenaicum* in Piedmont and in Hungary. *G. sanguineum* is a lover of dry calcareous pastures, especially near the sea. Two or three good composites occur at Llandudno on ledges of the Orme. I would especially point out *Hypochaeris maculata*, which was just opening when I left Llandudno towards the close of May, and the *Goldilocks* (*Chrysosoma linoxyris*), which flowers in September and October, and gives golden beauty to the buttresses of the Orme. The *Hypochaeris* may be readily recognised by its purple-spotted root-leaves and its solitary flower, which has the aspect of a Hawkweed. The *Chrysosoma*, Reichenbach tells us, occurs on sunny hills and chalky rocks in Middle and Southern Europe, and seldom in the northern tracts. I believe I am right in saying that it attains its most northern habitat at Llandudno. Another plant of a different tribe grows often side by side. This is the Horse-shoe Vetch (*Hippocrepis comosa*), whose legume corresponds so well to its English name. An inexperienced eye, just as it opens its golden flowers, might easily mistake it for the little Bird's-foot Trefoil. The pinnate leaves and curious capsules easily distinguish it, however. Its home is on the dry, chalky southern downs of England.

Among Ranunculaceous vegetation I would especially notice the occurrence of *Ranunculus parviflorus*—the tiniest flowered Buttercup—near Llandudno. But for its root and stem leaves, which point to a Crowfoot, it might readily be mistaken for some other flower. It grows usually in detritus of the mountain limestone rock, roots feebly therein, and is annual in its growth and development. Its prickly capsules group it with *Ranunculus arvensis* of our alluvial corn tracts. On the Continent it is chiefly found on rocky slopes along the Mediterranean, at Nice and Oneglia, and more inland at Pavia. It is a good find so far north as Llandudno, and speaks volumes for its usually equable climate. Let us now mention a few plants that seem attached in their distribution to old, ruinous abbeys. Whether these were once used medicinally, the former tenants alone could tell. Gogarath Abbey gives us some of these official plants, of whose properties as herbals old Culpepper would, doubtless, have had much to say, but which have now mostly passed away from our pharmacopœia. I allude more particularly to the Vervain (*Verbena officinalis*), large, strongly-rooted plants of which occur on the sloping road leading down to Go-

garth Abbey. To *Cynoglossum*, another of the group of officinals: its lurid red flowers cannot be mistaken. To *Hyoscyamus niger* (Henbane), which, year by year, on the same slope throws up its wonderfully coloured flowers and viscous leaves. This is still in high repute as a remedial agent in tincture or in extract. *Smyrniolum Olusatrum*, again, so abundant at Conway Castle, as also on the Orme above Gogarth Abbey, may have been utilised, as its name implies, as a pot herb by our ancestors before Celery was known, as Reichenbach tells us it is frequently grown in vegetable gardens in Italy and the south of Europe. And now we must search again the upper ledges of the limestone rock. Here we find the Maddar dye plant (*Rubia peregrina*) flowering as it fruits in the autumn just as bountifully as in the Isle of Wight and at Ventnor, where I have often gathered in years gone by its black shining berries. It is no pilgrim plant on the Orme, but a fixture. Who is to tell us the history of its settling down on the Orme? Person and Reichenbach tell us in their florals that it is wild at Nice and on the Mediterranean, stretching eastward to Istria and the islands of the Adriatic Sea. I must certainly not pass by the Cotonestear, so ruthlessly torn by visitors from the crevices of the Orme. I look on it as a tenant and original occupant of the headland. I have seen it in Eastern Switzerland just occupying the same soil, and putting up with the same conditions of life as at Llandudno. Why should it not be indigenous to the British Flora, but be treated as an alien like the Maddar? I cannot be thus illiberal, for I have closely watched the shrub for weeks where it grows on the Continent, and studied the conditions of soil, situation, and surroundings. The south and middle of Europe would seem to be its home. I copy word for word what Reichenbach, our best European authority, says of it: "It grows in rough rocky places on chalk and still older formations, on sunny hills among bushes."

I see from my note-book that I found the Cotonestear plentifully in fruit in July, 1860, at the close of the month, on the Orme. Another lover of the limestone crevices of the Orme is the White Beam tree (*Pyrus Aria*), a near relative of the Cotonestear. On the Orme, too, in years gone by, I used to notice *Epipactis ovalis*, which, though it may not by recent writers be allowed specific identity, is yet interesting as a strangely abnormal form of *E. latifolia*. It affects the most denuded limestone rocks, braving the full scorch of the noonday sun, often where only *Pyrus Aria* has foothold, and *Scilla verna* grows in the spring of the year. Another lover of dry, droughty ledges is *Veronica hybrida*, identical with the plant that grows on St. Vincent's Rocks, near Clifton. *Hutchinsia petraea* is an early spring Cresswort on the Orme's Head. It is soon over and in seed. I have now only a few more that seem worth recording. The Featherfoil (*Hottonia palustris*), belonging to the Primrose tribe, is common in some of the ditches at Llandudno. It is a pretty flower and well worthy of cultivation as a water plant. The curiously cut leaves, that are like a miniature ostrich plume, are immersed in the water. I must not omit from my list of wild flowers near Llandudno the *Chlora perfoliata*—a lover of chalky places that are subjected to some moisture. It is a Gentianwort, nearly allied to the Centaury (*Erythraea*). *Silene nutans* (the Nottingham Catchfly) gives out all its fragrance in the late evening. Its nodding white flowers readily characterise it. In the hedges you may very occasionally meet with a rare plant—the *Astragalus glycyphyllos*, known by the not inappropriate name of Liquorice Vetch. It is a large branching plant, with pinnate leaves and

green flowers, a very contrast to its little classmate, *Astragalus hypoglottis*. One other, belonging to the Carnation tribe, is worth mention. I mean the Maiden Pink (*Dianthus deltoideus*), which grows in the pasture below the hill of Diganwy.

PETER INCHEBALD, F.L.S.

Fulwith Grange, Harrogate.

NOTES OF THE WEEK.

GRUM MAXIMUM.—This is a golden flower $1\frac{1}{2}$ in. across; looks promising. We judge from a very small bit sent by Mr. Ware.

RUBUS NUTKANUS.—This is a free old shrub, good in a wood, where it rambles freely. Leaf and flower good in the cut state. It is now in flower.

LINARIA PALLIDA.—This is bold and pretty indeed for a pigmy; an "Ivy Toadflax" that does not "run" much, and bears purple flowers half as large as Snapdragons. A good rock plant. Sent by Mr. Ware.

CALCEOLARIA HYSSOPIFOLIA.—This distinct kind comes to us from the gardens at Edge Hall, but we cannot judge of its merits as a garden plant without seeing it in the open air. It seems distinct.

VERONICA TEUCRIUM is one of the hardy Speedwells, and good in colour, but of the allies of this there are too many, short-lived and without character, and strict selection is necessary. We are indebted to Mr. Dod for specimens of the true plant.

CAMPANULA VAN HOUTTEI.—A gigantic Bellflower, which seems to thrive apace in the gardens at Edge Hall, whence Mr. Dod sends us fine specimens. It is a very showy border plant when well grown, as in this case.

GERANIUM ARMENUM.—This fine Geranium now comes to us from Mr. Wolley Dod; it is the boldest and largest of the tribe of hardy Geraniums, and a very effective plant in midsummer, growing sometimes over 2 ft., and bearing a great profusion of handsome flowers.

LILIUM MONADELPHUM.—There is at present in bloom in the garden of Mr. Andrew Blaikie, Newtown Street, Dunee, an uncommonly large and beautiful specimen of this Lily. It has thrown up in a cluster 40 stalks, 5 feet in height, carrying a total of about 400 large, well-defined blooms. The circumference of the mass of stalks literally covered with bloom is about 18 feet.

FRUIT-PACKING PRIZES.—The competition for the prizes offered by Messrs. Webber & Co., of Covent Garden, for the best system of packing fruit for market again takes place at South Kensington on June 27, the day on which the Pelargonium Society's show is to be held. The details of the competition will be found in our advertising columns.

MIMULUSES OF THE CARDINALIS TYPE.—CRIMSON KING and CUPREUS—we are indebted to Mr. Wolley Dod for, and they look fresh and showy from his garden, but our experience of them is that they get very rusty and unsatisfactory about London and in the south of England generally. They are not nearly so valuable as the dwarfed, larger-flowered *Mimulus*, though they may behave better and flower longer and fresher in wet districts.

SPIRÆA ARUNCUS PLUMOSA is the name of a dwarf form of the Goat's-beard, the white plumes of which have a much more feathery appearance than those of the type; hence the name. In Mr. Ware's nursery, at Tottenham, it is growing side by side with the common form; therefore the distinction is apparent, and it shows

itself to be a better plant in many ways. To us there does not appear to be any distinctive character belonging to the plant sold as *S. Aruncus macrophylla*, a name which certainly ought to be suppressed.

LUPINUS ARBOREUS.—No hardy plant could well present a much finer appearance than a large and profusely-flowered bush of the Tree Lupine, such as may now be seen in perfection in Messrs. Barr and Sugden's trial grounds at Tooting, where it seems to revel in the deep, clayey soil. There are two forms of it, one with long racemes of clear yellow blossoms, the other with a slight suffusion of purple in the flowers; both are extremely handsome and both emit a delightful fragrance, which pervades the air near them. Would that this Tree Lupine could take the place of many a weedy plant of the hardy herbaceous type seen in gardens.

STENOCASTRA CONCINNA is a veritable little gem among stove flowering plants, being a perfect miniature of some of the larger Gesneraceous plants. Its tiny round leaves form neat little tufts, which lie flat on the soil, and from them springs a profusion of tubular blossoms about 1 in. long, of a bright violet-purple, with a white and copiously spotted throat. Cultivated with other little shelf plants in a stove, it never fails to arrest attention when in bloom, as it is so unlike the majority of tender plants. Nevertheless, it is seldom met with outside a botanic garden. It is, however, grown well in Mr. B. S. Williams' nursery, Upper Holloway, where there are numerous beautiful examples of it now in bloom on a shelf in one of the stoves.

XEROPHYLLUM ASPHODELOIDES.—When this North American plant was exhibited in flower a year or so ago by Mr. G. F. Wilson it was then finer than had hitherto been seen, but the same plant which is now in full flower in his garden at Heatherbank, Weybridge, is still finer. There are four flower-stems, each about a yard high, quite erect, though slender, each terminated by a dense cluster of white blossoms. These flower-stems arise from a spreading tuft of grassy foliage springing from a bulbous base. It is, in short, a very handsome plant, and those who said hard things about it when exhibited and awarded a first-class certificate would probably alter their opinion of it could they see it now. It is growing in a peaty border in a semi-shady situation with other North American plants, such as *Trillium*, *Erythronium*, a position which seems to suit it.

ZEPHYRANTHES CARINATA is one of the loveliest of Mexican bulbous plants, and in our opinion quite the gem of the genus, at least so far as regards the introduced species. It is of low growth and has evergreen foliage. The flower-stems carry one large blossom from 3 in. to 4 in. across, of the loveliest deep rose-pink imaginable. Though not a perfectly hardy plant, it succeeds well on a dry, sunny rockery if afforded a little protection during winter. At the Hale Farm Nursery, Tottenham, most of the bulbs of a large importation are in bloom, and a very pretty sight they are, the glowing colour of the blossoms being, as it were, intensified when seen in such large numbers. The new *Z. Treatiae*, a species similar to *Z. Atamasco*, but larger and whiter, is likewise in blossom.

ANTHURIUM ANDREANUM.—This is now in good condition in Mr. W. Bull's nursery, at Chelsea, the size and brilliant colouring of the spathe being equally good as in the first specimens shown by Mr. Linden. Several fine plants of this Aroid have been shown at exhibitions this season, but they, though well grown, bore flowers of comparatively small size and restricted proportions. Perhaps imported plants vary somewhat in the size and hue of their flowers.

Near those at Chelsea is the new A. Rothschildianum, with its white spathe spotted and streaked with the most brilliant orange-scarlet. This is a great novelty; the spathe, as seen in the present instance, is not large, but very distinct and striking. If the plant and flowers rival in size those of A. Scherzerianum, it will make a valuable exhibition plant. Somehow the white varieties do not realise what was anticipated of them; the flowers are small and the stems weak.

LYCHNIS VISCARIA FL.-PL. comes to us from Mr. Cornhill, who writes about it as follows: "Than this old clammy Lychnis it would be difficult to name a plant, tender or hardy, that is more beautiful, though now but little thought of. If but newly introduced, it would be honoured with a coloured plate in THE GARDEN. The effect of large specimens of it carrying some two-score spikes of bloom is very striking. Erysimum Perofskianum is also sent, just to remind you that it is the earliest as well as the brightest of autumn-sown annuals; in masses it is intensely brilliant."

ENGLISH AND SPANISH IRISES are now, or ought to be, the most beautiful occupants of sunny borders in every garden, for assuredly no other class of hardy plants possess such a combination of all that is desirable, being neat and graceful in growth, and having elegantly formed flowers with striking colours. Among English Irises (those with the broadest petals) there is every variation, from snow-white to the deepest purple and rose, and some are handsomely blotched and spotted. The range of colour in the Spanish Irises is not so wide, and in some there are strange mixtures of tints. There is quite a study in colour among these beautiful Irises, and nowhere have we feasted our eyes so much as on the fine collection of them in Messrs. Barr & Sugden's grounds at Tooting.

IXORA PILGRIMI.—In order to form an adequate idea of the beauty of this new *Ixora*, such a magnificent bush of it as that in one of the plant houses in Mr. B. S. Williams' nursery, Upper Holloway, must be seen. This grand specimen is furnished with some 270 trusses of bloom, dense and globular in shape, and measuring from 5 in. to 7 in. across. The colour is a bright orange-scarlet shaded with crimson, colours which contrast well with the broad and ample foliage. The vigorous constitution and excellent habit of this variety, combined with the fact that it may be grown to perfection in a much lower temperature than that necessary for the older kinds, are circumstances much in favour of its becoming a valuable decorative plant both for general culture and exhibition. It is said to be a hybrid produced from *I. Williamsi*, and was raised by Mr. E. Pilgrim, of Pittville, Cheltenham, after whom it is named.

ORNITHOGALUM ARABICUM.—What a pity it is that this beautiful bulbous plant is not as hardy as its commoner relatives. At the Hale Farm Nursery there is a large bed of it containing some hundreds of plants, producing tall slender flower-spikes, the effect of which when moved by the wind is strikingly beautiful. It is a plant that does not appear to be much known; therefore it might be well to add that the stems are from 1½ ft. to 2 ft. high, and terminated by a dense broad cluster of flowers about 1 in. across of waxy texture, pure white with a dark centre. It is largely grown by Mr. Ware, and sold both for greenhouse culture and for planting out from spring till autumn in some dry sunny border where, if the bulbs are large, they will flower better even than under glass. It is certainly a plant that will well repay the trouble bestowed on its culture. Another beautiful *Ornithogalum* in flower in this nursery is

O. pyramidale, a perfectly hardy plant which has flower-stems as much as 5 ft. high surmounted by a dense conical cluster of small white blossoms. It succeeds best in a thoroughly drained border or rocky in a semi-shady spot. Thus circumstanced, it will in a few years attain its highest development.

LILIUM HANSONI is now the one great attraction in Mr. Wilson's Lily house at Weybridge. There are about a dozen plants of it in the deep pots which Mr. Wilson uses exclusively for his Lilies. The stems of this Lily average from 4 ft. to 5 ft. high, stout and erect, furnished with distinct whorls of foliage, and terminated by a cluster of from six to nine flowers; most of them, indeed, carry eight. The flowers are about 3 in. across, of a wax-like texture, and of a bright orange colour, copiously spotted with chocolate. The flower-spikes have a tendency to spread horizontally, which is quite a distinctive character. Some time ago it was thought that *L. Hansonii* would be one of the finest garden Lilies, and certainly these plants bear out the prediction.

DIPLADENIAS are certainly among the loveliest and most graceful of all stove plants, yet, beautiful as they are, it is exceptional to meet with them grown to perfection, except now and then at flower shows. No good garden, however should be without them—particularly some of the beautiful hybrid varieties obtained of late years. They are great improvements on the older kinds, as they combine beauty of colour, profusion of blossoms, and their flowering spreads over such a wide range of time. Of the newer kinds we do not think a finer variety exists than *D. profusa*, which we recently saw in full bloom in the Victoria Nursery, Upper Holloway. Here some plants of it trained under the roof of one of the stoves are truly beautiful, the long, slender shoots being well furnished with clusters of blossoms, which measure as much as 5 in. across, and of a rich carmine, more or less deep according to the age of the flower. This variety is not only remarkable for its profusion of blossoms, but also for its fine vigorous constitution, a great consideration in a *Dipladenia*. A coloured illustration of this plant appeared in THE GARDEN a short time ago. Another variety in flower at Mr. Williams' is *D. amabilis*, also a lovely plant, with similarly coloured blossoms, but not such a copious flowerer. Full directions for cultivating these stove climbers have from time to time been given in our columns.

AMARYLLIS MRS. GARFIELD.—Most people acquainted with stove plants know of the old *A. reticulata*, so distinct from any other species, or, indeed, any other plant, on account of the broad silvery band which runs down the centre of each of the evergreen leaves. It is not, however, generally known what lovely flowers it bears, inasmuch as it seldom blooms under ordinary treatment. The flowers are large, of fine shape, and of the loveliest rose-pink colour imaginable, and what makes it more remarkable is the delicate tracing of network of dark pink hues in each broad petal. Now, thanks to the hybridist, we have in the new Mrs. Garfield the initiative of a very beautiful race of varieties combining all the beauty and delicacy of colour of *A. reticulata* with a free flowering tendency. This beautiful new hybrid, moreover, possesses the desirable character of its parent, *A. reticulata*, in having evergreen foliage, and flowering late in the season long after the ordinary kinds are past. A variety called *Defiance* was the other parent of Mrs. Garfield, and this has imparted the fine large flowers and richer colour than that of the type. The leaves, which are much longer than those of *A. reticulata*, being as much as 1½ ft. long by 3 in. wide,

preserve the characteristic white band. It has just commenced to flower in the Victoria and Paradise Nurseries, Upper Holloway, where it originated. The plants here show well the free flowering habit and the lovely colour of the blossoms, which contrast strikingly with the brilliant hues of the ordinary varieties, many of which are still in flower in this nursery, which is famous for its collection of *Amaryllides*. Among them there is one in particular that is worthy of note. It is called Noble Sultan, and it certainly is a noble flower, large and of fine shape, and the colour—a fiery vermillion—is as bright as that colour could well be.

THE BELGIAN VISITORS.

A PARTY of about eighteen Belgian horticulturists propose visiting this country next week for the purpose of seeing illustrations of various departments of British horticulture. The scheme proposed to meet the expressed wishes of the excursionists is as follows: Monday, June 27.—Visit to market florists' establishments and Kentish fruit growers. Tuesday, June 28.—Exhibition of the Pelargonium Society at South Kensington. Luncheon offered by the council of the Royal Horticultural Society and the committee of the Pelargonium Society to the foreign visitors. Other gentlemen desirous of being present are requested to apply immediately to Mr. Shirley Hibberd, 15, Brownwood Park, Stoke Newington, or to Dr. Masters, Mount Avenue, Ealing. Tickets, 21s. Wednesday, June 28.—Visit to Slough, Frogmore, Windsor, Cliveden, Dromore, and Burnham Beeches. Thursday, June 29.—Visit to market gardens in the neighbourhood of London. Dinner of the Gardeners' Royal Benevolent Institution. Friday, June 30.—Visits to nursery establishments at the discretion of the visitors. Saturday, July 1.—Visits to Kew, Syon, and Chiswick. In addition to these proposals various offers of private hospitality on the part of nurserymen and others have been made to the Belgian visitors, whose headquarters will be at De Keyser's Royal Hotel, Blackfriars.

Gardeners' Royal Benevolent Institution.—Let us hope that the forthcoming anniversary meeting of this institution may be even more successful than its predecessors. Under the presidency of the Lord Mayor it cannot well fail to be so, but gardeners must also assist in all ways that they can. There are now no objectionable rules to keep them from joining the institution; in fact, such reforms have been made that many who for years stood aloof are now becoming members. Speaking for myself, I can say that I would never have joined it had I not been balloted for before receiving its benefits. Gardeners have enough to contend with without having the benefits of a charity which they have supported when able to do so denied them in their need, or put on the same footing as those who have never made provision for the infirmities to which we are all liable. Therefore, let me urge on gardeners whose position does not enable them to attend the anniversary festival to at least lend their aid either in canvassing for the annual collection or giving their mite to swell the funds, as the larger the sum collected the sooner will the pensions be raised from £16 and £12 to £20 and £16 respectively—a great inducement for many to join who now belong to societies perfectly distinct from that in question. There never was a time when it was more incumbent on gardeners to assist an institution from which they may in later years be benefited by the funds which they have themselves helped to get together than the present. Therefore, I say do not be backward in lending a helping hand.—JAMES GROOM.

Picking off seed-pods.—If you want a continuous supply of flowers, do not let any seed-pods swell up to any size; one pod exhausts plants more than a dozen flowers. Go over the plants regularly with a pair of scissors, and divest them of all decayed flowers and seed-pods in their earliest stages. It is pleasant and well-spent labour.—J. G. L.

INDOOR GARDEN.

WINTER-BLOOMING PLANTS.

IF "F. C. B." wishes to have a display of bloom from November onwards, he will find nothing better than Cyclamens and Primulas, which alone would suffice to create a brave show at that time. Cyclamens especially, ranging, as they do, from pure white to crimson, and dowering continuously for a period of quite four months, are unsurpassed as winter-flowering subjects. The same may be said of Primulas, but to have these as well as Cyclamens well in bloom by Christmas, they should now be getting established in 2½-in. pots, so that they may be ready for their blooming pots by the beginning of July. Cinerarias may also be had in bloom early in the year, but the seed would have to be sown in March, or they will not flower till spring. The season being so far advanced, I would recommend your correspondent to procure strong young plants at once of the above and grow them along freely. Paris Daisies, both white and yellow-flowered, bloom all the winter, and they may be grown out-of-doors all the summer; and there is also what has been very recently named the blue Marguerite (*Agatheæ cœlestis*), a plant which produces a pretty contrast in the way of colour. I would also include a dozen or so of winter-flowering *Pelargoniums*, such as *Vesuvius* and its white and crimson varieties, *Guillem Mangili*, *West Brighton Gem*, *Eureka*, *Lady Sheffield*, *A. Henderson*, and *Titania*. The principal point with these plants is to grow them in full exposure to sun all the summer, not allowing them to bloom until late in the autumn, so that their energies may be concentrated upon a winter display. I very strongly recommend *Echeveria retusa*, one of the most easily grown of winter bloomers, and then there are *Bouvardias* and *Begonias*, both very useful and showy when well grown. The latter should be grown along freely under glass all the summer, so that they may form bushy, well-established specimens in 4½-in. pots by autumn. Good kinds consist of *nitida*, *Ingrami*, *semperflorens rosea*, *insignis*, *Saundersoni*. Some kinds of *Heliotrope* flower all the winter, the new variety *White Lady* being highly recommended, and *Mignonette* sown in August and early in September comes well into flower in great warmth at that time. To the above plants the word forcing scarcely applies; they should be simply kept moving in a temperature of 55° by day, and 50° by night, giving air on all favorable occasions. Of other plants which bloom in winter or rather early in spring may be mentioned some of the *Spiræas*, especially *S. japonica*.

J. C. B.

PIGMY STEPHANOTIS.

SOME few weeks ago we received from Mr. W. Crowe, of the Boleyn Nursery, Upton, Essex, two or three little plants of *Stephanotis* in flower, of which the accompanying woodcut is a representation. In such a small state plants of this well-known climber are peculiarly interesting, and no doubt will be found useful for many purposes. With regard to these pigmy plants Mr. Crowe writes to us as follows: "In the latter part of February of this year we cut away a quantity of wood from a large plant of *Stephanotis floribunda* trained to the roof of a stove. This wood was cut up into about 1000 eyes, potted separately into 2½-in. pots and placed in a propagating case. The greater portion of the wood was well ripened and would have flowered had it remained on the plant. So well ripened, indeed, must the wood have been, that the flower was already in some of the eyes

are desired, *G. brenchleyensis* is one of the most striking, but for ordinary purposes the mixed colours of unnamed seedlings are preferred, and are, moreover, much cheaper than named sorts. When flowering is over they may be set out-of-doors, and kept moderately dry until the foliage dies off, when they may be shaken out, repotted and plunged in ashes as before. Thus treated, they will flower several years in succession.—J. G.

POTTING AURICULAS.

WRITERS on Auriculas concur in recommending that they be potted annually. They say in general terms that as soon as possible after blooming repotting should be performed, the soil being shaken from the roots, and all but the young fibres near the neck of the plants removed, repotting deeply in fresh soil. This is the advice handed down to successive generations from time immemorial. Now, is this annual repotting necessary? If the plants should be in unsuitable soil, the pots deficient in drainage, or the plants unhealthy, then repotting is absolutely necessary, and at any time. But if everything is favourable to proper development, if the plants make a generous and healthy growth, is it necessary to repot annually? I put this question because when in conversation with the Rev. F. Tynons, of Drumcondra, a few days ago, we talked this matter over, and when alluding to the utter dry, pot-bound condition of the wonderfully fine plant of Richard

Heady, with its splendid truss of fourteen flowers, which he sent over from Dublin to the National Auricula Society's show at Manchester, he informed me that the plant had not been repotted since 1880, and this successful grower appeared to be of the opinion that an annual repotting is not so necessary as is supposed if the plants be healthy and doing well. Nay, more; heterodox as it seems, Mr. Tynons appeared to be still further of the opinion that top-dressing in early spring is almost a work of supererogation. There is one characteristic of the Auricula that makes repotting necessary, that is, the natural tendency of the plant to thrust itself up out of the soil. A process of elongation is going on during the time the Auricula is growing, and new roots are thrust out close up to and even among the leaves. It is for this reason that those who are qualified to give advice in the matter of potting Auriculas always recommend that the plants be potted deeply in the soil, so that young roots be freely put forth near the surface at the proper time. Supposing that a grower starts well by repotting the whole of his plants in May, but doing it properly, *i.e.*, securing a suitable compost with the

Pigmy plant of *Stephanotis floribunda*.

similar to a well-ripened Hyacinth or Tulip, and after the eyes rooted they flowered without making any growth, as shown in the sample or two sent to you, and I should say we had from twenty-five to thirty others which did precisely the same."

Gladioli in pots.—These brilliant autumn flowers succeed well in pots, and are very suitable for those who have but a limited amount of glass, and yet like to have plants in bloom for conservatory and indoor decorations. Procure good bulbs when dormant, and pot them in a mixture of chopped turf, peat, leaf-mould, and sand. One good strong bulb will send up at least two spikes of flower, and fill a 6-in. pot well; but if medium-sized bulbs are used, three or five bulbs may be used in pots of proportionately larger size. Cover them with coal ashes out-of-doors, and let them remain until growth is active in spring; then take them out, set in a cold pit, and hasten or retard them according to the period at which they are required to flower. If striking masses of colour

necessary heart in it, providing pots that shall be clean and sufficiently large, but not too large, and draining them thoroughly by placing the necessary quantity of crocks at the bottom, and over these a layer of fine crocks, small charcoal, or some such material for the purpose of preventing the soil from being washed down among the crocks, is it necessary to repot all the plants a year hence? and if it be necessary to repot, is it needful that all the soil be shaken from the roots, and the "carrot" cut back, as is generally recommended? I think not, I have found in my own case, and I daresay other growers could give the same experience, that more plants are lost after repotting than at any other season of the year. The fact is, that by reason of the practice of shaking out the soil from the roots root-action is, it may be remarked, suspended for a time, and during the period of inaction rot is apt to cause death to some of the plants. The large majority of my plants—about 300—are already re-potted, and are looking as well generally as I have ever seen them before at this season of the year. In repotting it was only a comparatively few of the plants that had all the soil shaken from the roots; all that had made a mass of healthy roots had the soil carefully crumbled away from round the ball, leaving the centre quite entire, and in this way they were re-potted. By doing this there is no stationary process, as it were; the plants get to work at once, and they soon show it in a vigorous growth. I have found, and others have found the same, that when the roots of *Auricula* are trimmed back close they are a considerable time in getting through the soil to the sides of the pots, and the slowest among them do not do this as completely as we would like till the following spring. If the roots of an *Auricula* be well through the soil and coiled round the sides of the pot before winter sets in, the cultivator need have no fear of injurious effects from frost unless the soil be very soddened with wet. I need scarcely say that the more fully the plants are rooted the better will be the growth in early spring and the finer the pips and trusses of bloom. In that case, some top-dressing carefully done may be of service, but its necessity is not so great as is commonly supposed. I may add that I am this season using in my *Auricula* compost some calcined sand and fine charcoal from a farmhouse in Kent where the old Hop poles are made into charcoal for use in the Hop kilns. I find the addition of this keeps the soil free and open, and the plants seem to be rooting freely into it and making a very satisfactory growth. I have used a fairly rich compost, and I hope next season to make the experiment of continuing for another year in the pots in which they are growing the plants I have recently re-potted. R. DEAN.

Fernella buxifolia.—The following description of this plant, taken from Baker's "Flora of Mauritius and Seychelles," may supply Mr. Wood with the information he requires:—"F. buxifolia.—A much branched shrub, 4 ft. to 5 ft. high, with slender branchlets, at first a little downy. Leaves short, petioled, shining, glabrous, sub-coriaceous, obtuse, obovate, or oblong, $\frac{1}{2}$ in. to $\frac{3}{4}$ in. long. Flowers copious, solitary, sessile in the axils of the leaves. Calyx 1-8th in. long; teeth linear lanceolate; corolla whitish, under $\frac{1}{2}$ in. long, the lobes exceeding the tube; berry deep red, juiceless, the size of a Pea, sessile inside the calyxule." There are two varieties also described, one, pedunculata, taller and laxer in habit than the type; the other, ovata, distinct in having longer, thinner leaves and larger berries. It will be seen from the above that, whatever may have led to the name *Coccyzocypselum* being given to this plant, it in no way resembles that genus, which is composed of low herbaceous plants, one of which (*C. discolor*) is cultivated in some gardens. The habit and characters of the *Fernella* are near those of the Coffee, but smaller. Its botanical position is between *Randia* and *Gardenia*, in the Order Rubiaceae. It is the only species known, and is found only in the Mauritius and in one or

two neighbouring islands. Of course it is not hardy, but would require stove treatment, and would thrive, I should think, if treated like *Gardenias* and *Coffees*. It is hardly necessary to add that this *Fernella* is almost, perhaps quite, devoid of any characters likely to commend it for cultivation in this country. Does Mr. Wood possess living plants of it?—B.

Dipladenias.—These will be just now in good condition for being propagated where desired. The soil in which the cuttings are inserted should consist almost entirely of sandy peat, sifted through a sieve with a $\frac{1}{2}$ -in. mesh, or a little loam may be added, but not more than a fourth, part or the compost will be too solid. Make the cuttings of the side shoots rather than the gross leading ones, as the latter are more liable to decay; and in cutting them, if the length between the joints is not too great, leave one at the bottom, but if by so doing an unwieldy length of cutting is obtained, a joint at the base is not absolutely necessary. Put them in small pots filled one-third full of broken crocks, then the soil pressed moderately firm, and finally a layer of clean silver sand on the top. Insert the cuttings so that the bottom pair of leaves is just above the soil. Take care that the cutting is firmly fixed in its place, i.e., avoid leaving a cavity just at its base, or it will probably shrivel up. When inserted, tie each cutting to a small stick, water, and place the pots in a close case till rooted, or at all events till callused; when in the latter condition, the formation of roots is hastened by plunging the pots in a little bottom-heat. The cuttings will be rooted in a few weeks, and must then be hardened off, potted into larger pots, and grown on as may be required.—ALPHA.

Acacias of the greenhouse kinds cut back after flowering will now be producing plenty of shoots, which will make good cuttings, especially if kept since flowering in a temperature rather above that of an ordinary greenhouse. As they are somewhat difficult to deal with, they will require a considerable amount of care. Take some bell-glasses, and having obtained the proper size of pots for them, fill the latter to within 1 in. of the top with broken crocks, the rougher pieces being placed at the bottom, and gradually becoming smaller, till the upper layer is composed of pieces fine enough to prevent the soil passing through them. If the pot is large, a small one may be inverted over the hole in the bottom to facilitate drainage. For soil, take two parts peat, one part each of loam and silver sand, and sift the whole through a fine sieve, so as to thoroughly mix the different ingredients together; then fill the pots firmly almost to the rim, leaving just enough space for a thin layer of silver sand, and when this latter is put on give a slight watering, and all will be ready for the insertion of the cuttings. Shoots of from $\frac{1}{2}$ in. to 2 in. long are the best, and must be cut off cleanly without bruising the cuttings, from which the bottom leaves should be removed for about $\frac{1}{2}$ in. For this latter purpose a small sharp-pointed pair of scissors are most suitable; indeed, they are of great use in a variety of matters relating to propagation, especially if kept sharp and clean. Before putting in the cuttings press the bell-glass in its place, as by its imprint in the sand the space available for the cuttings is at once shown, and all danger of pressing them down by the edge of the glass is thus avoided. Put the cuttings in firmly, but not too thickly, and when finished give a good watering—indeed, a thorough soaking, to cause the sand to form one unbroken surface; after this leave off the glass till the foliage is dry, when it may be at once put on, pressing it down slightly to make all air-tight. When this is done place them, if possible, in a close house, but one in which little more than greenhouse temperature is maintained, while if such does not exist a cold frame is better than a light, airy structure. The glasses must be removed each morning for a short time, and after watering leave them off till the foliage is dry again. Remove at once all decaying matter, as it spreads quickly. In this way they will soon root, or if rather slow when cal-

lused they may be kept warmer, which will hasten their rooting.—H. P.

Gloxinias.—So much variety may be obtained from a pinch of seed, that many prefer propagating these beautiful plants in that way; but where it is desired to increase individual kinds, it may now be readily done by means of cuttings made of the leaves, and if grown on freely they will form tubers before winter. Take the leaves wherever they can be removed without disfiguring the plant, retaining as much of the leaf-stalk as possible, and dibble them in as cuttings in well-drained pots of sandy soil, inserting them at a sufficient depth to just cover the base of the leaf, which with the buried stalk will suffice to retain the leaf in position. Three or four may be placed around the edge of a pot, and when watered prior to putting them in a case see that they do not overbalance and drop out. If such appears likely to happen secure them with a few little sticks. After watering place them in a close case in a temperature of from 70° to 80°, when they will soon root and push up, but if rather slow in so doing a little bottom-heat will greatly assist them after the first danger from damping is past. When rooted give air by degrees, pot off, and treat them as older plants. Tydeas may be propagated at the present time by means of cuttings made of the shoots in the usual way. As they do not like their roots disturbed more than is necessary, the better way is to insert each cutting singly in a small pot, putting a few crocks, broken charcoal, or fibrous peat in the bottom by way of drainage, and filling up with light, sandy soil. Remove the two bottom leaves and put in the cutting, so that the base of the two above just touches the surface of the soil; then treat them as recommended in the case of *Gloxinias*, when they will soon root. After that they should be grown on freely, in order to obtain corns of sufficient strength to survive the winter.—R. M.

Poinsettias.—Of these there are now several varieties, but all of these are amenable to the same treatment as the well known pulcherrima. Old plants cut back and re-potted should now be put out into pits where they can be kept close to the glass, so as to prevent them becoming drawn. Any pits or frames from which early Potatoes have been cleared may be utilised in this way, lowering the material as the plants progress in height, so as to just keep the tops clear of the glass. Keep them well watered at the root, and shut up with a good steamy heat, the result of damping all the surfaces of the pit just before closing-up time—the best antidote for red spider. Cuttings or eyes of the old wood put in some time ago will now be rooted and may be potted in 3-in. pots, and grown on in frames like the older plants, except that they may be kept much more dwarf. Such plants are invaluable for vases. Old plants from which the crowns can be spared may now be utilised for cuttings; they may be kept very dwarf, and for such purposes as table decoration, when large heads of flower in very small pots are required, they will be found extremely useful.—J. G.

BEGONIA SEMPERFLORENS.

This Brazilian Begonia is one of the most useful of the genus. As its name implies, it is really ever blooming. Sprays of it cut off with a flower truss or two on them will be found to be excellent in many ways for floral decoration, the pale green of its foliage and the pearly white flowers being always effective. The new variety, of which the accompanying illustration is an example, is a rose-coloured form, which will be found to be a good companion to the older kind. This newer sort will, I think, prove valuable for conservatory decoration, and can in many ways be turned to good account. One great advantage of *Begonias* belonging to this class is that they are very floriferous in small pots; even in 3-in. ones they flower freely. The white kind I find comes perfectly true from seed, and plants raised in this way are more robust than they are from cuttings.

Young and vigorous plants from seed sown this spring are now in flower, the blossoms being much larger than those on a plant struck from a cutting. The new rose-coloured kind is, I believe, largely raised from seed. I saw at least a great number of it so propagated in a private establishment lately. Where raised from cuttings, a batch of them put in occasionally will be found the best plan. The oldest struck can then be cast aside when somewhat exhausted. During the summer a light, airy house will be found to suit them well; for winter blooming the stove will be about the best

Nymphæas I may mention that *N. flava*, which is almost hardy in this country, is much more satisfactory when grown in a tropical tank than otherwise, the leaves being larger, the flowers larger and brighter, and the whole plant much more vigorous than I have ever seen it out-of-doors. —B.

ROSE GARDEN.

ROSE BUDDING.

THE time for budding has once more come round, at least so say the Briers as they wave their tall stout shoots in the air. Seldom or never have Briers outrun Roses so fast and so far as this season. The autumn was favourable for the rooting of Briers this winter. Well, there was no winter to check either their root or top growth; hence their precocity and vigour. Hungry hosts of maggots have shown their refined taste this spring by dieting on Rose shoots rather than those of the Brier. Moreover, no one thought of cutting back their Briers when they cut back their Roses in March; the result is that instead of Brier wood and Rose buds running such a neck-and-neck race of fitness and congruity for each other, as delights the eyes and hearts of experienced Rose budders, the buds in too many instances are out of the running. It almost seems as if in many cases before the Rose buds are sufficiently plumped up for budding the bark of the Brier will be set. The most urgent practical questions for rosarians at the present moment is how can this abnormal and striking disparity in budable condition between Briers and Roses be lessened. A good deal might be done by keeping the Briers in full growth and by removing early the flowers and even buds from those from which buds are wanted. In dry weather the heavy watering of Briers is a safe and sure antidote against the setting of their bark. Flooding or irrigation on dry soils will keep the most forward Briers in budable condition for a fortnight, three weeks, or a month longer. In furtherance of the same end, the extremities of Brier shoots should be allowed and encouraged to grow. The practice of stopping before budding is always of doubtful utility. It is positively wholly mischievous when, as this season, the Briers are so far ahead of the Rose buds. So long as the extremities of the shoots continue in vigorous growth the mere rush of the sap keeps the bark of the Briers in a running condition. Once the sap is fairly arrested by drought, heat, stopping, completion of growth, or any other cause, the bark gets fixed for the season, and budding becomes from that moment most difficult and precarious, if not absolutely impracticable. By cutting Roses early, and even when needful sacrificing buds, a powerful influence is given to the plumping up of the wood-buds. Plumping up is essential to success in budding for three reasons. The first is, it gives the bud sufficient vitality or self-sustaining power to enable it to support itself until the Brier takes it on or in so closely as to feed it from its own ladder—the roots, and enables it to breathe through its own lungs and heart—the Brier leaves—until it is furnished with these vital organs for itself. Further, plump, well-filled buds become active agents in promoting the union desiderated between the Brier and the Rose. Weakly, imperfectly developed leaf-buds at best are only passive. Should they survive removal from the parent Rose, and live long enough in their new and novel position, the Brier may or may not take them on or into its system. The chances are strong that the Brier will not. But the first bud rushes half way or more to meet, unite, and becomes one with the Brier. It gives of its cambium and its life's blood to form a union with the Brier; and consequently a union thus promoted from both sides, like marriages based on affection, are sure to prove attractive, successful, and happy to all concerned. The last reason for plumping up buds for budding is that only such can be properly prepared and inserted with all their growable properties intact. It is not till buds are fairly and fully developed that they can be detached from their parent Rose

with base, bark, and sap in growing condition. With all these qualities in perfection the Rose bud takes to the Brier as a matter of course. Writing figuratively, its new home is so like its old one, that probably the bud never knows the difference, not at least until it has advanced too fast and too far to retreat. All this, however, assumes not only that Briers and buds are in the most perfect condition, but also that the transference is skillfully and rapidly accomplished, that no clumsy wounds nor bruises of bud nor bark are made, and that no sap is dried up nor mixed with separating water in the process. It would be hard to say whether water or air are the more fatal to a perfect and rapid union of Rose buds to Briers. The wise budder will, as far as possible, avoid both, and make the passage of the buds into the Briers as short and swift as possible. The greener, that is the more recent, the wounds are laid bare of bark and Brier rind, and the sooner the buds are housed and finally fixed by secure tying into the Brier, the higher the ratio of successful budding and the longer lived and more healthy the Roses will prove. D. T. F.

LOP-SIDED ROSES.

THE year 1882 bids fair to be known as that of lop-sided Roses. For one perfect Rose in many gardens it is no exaggeration to say there are a dozen lopsided ones. Nothing was more natural than to attribute these misshapen blooms to the ravages of grubs, caterpillars, and aphides; but the majority of them show no trace of insect agency. I have dissected a good many, and have not found a creeping thing, fly, or worm in their buds or hearts. Most of the deformed buds look as if there were a real fault either in the amount or in arrangement of their material. In many of them the petals seem bruised—as if the buds might have had a sledge-hammer blow in their earlier stages. Could it be possible that the gale that closed April this year could have so whipped the buds as to have wounded and bruised them in embryo? One fact that goes far to establish this guess at truth is that the largest bushes, with the more flexible branches, such as old plants of Charles Lawson, have the largest percentage of lopsided flowers; but all seem to have them more or less, and that over the widest areas. Only today I heard of a case of a large garden in East Anglia out of which a perfect Rose had not yet (June 12) been gathered. Another gentleman bore similar testimony within an hour of the first, and the two gardens were at least sixty miles asunder. We are by no means so bad as that, though our Lop-sided Roses are a great vexation. Neither are the lop-sided Roses the only monstrosities of the season. A good many others seem strongly inclined to open their eyes, such specimens being seldom distinguished by any particular beauty in that all too prominent organ. There is also a prodigality of green or malformed petals in the flowers that are otherwise of normal form and colour. Altogether, I am sorry to say that my estimate so far of the Rose harvest by no means comes up to that of our Rose Canon (Hole). The whipping storms, long continued droughts, and parching east winds seem to have injured Roses in not a few localities almost as much as the killing winters to which some of our Roses began to be accustomed. What with swarms of insect pests of all sorts, weakly growth in many varieties, and lop-sided blooms ad libitum, the first Rose harvest of the season is neither so plentiful nor so perfect as all true rosarians would like to see it. D. T. FISH.

Williams' evergreen Rose.—A very suitable climbing variety for a wall or screen. At all times attractive, but especially so when in bloom in June, and also during winter, when its foliage becomes dark glossy green. Grows most vigorously, quickly covering anything against which it is planted. Would be very suitable for a wilderness or among shrubs, where it could fling its graceful weeping branchlets about in natural and wild luxuriance. Its great charm lies in its



Begonia semperflorens rosea.

place for them, taking care to keep the stock in a rather dry position. Though requiring a free supply of water at the roots, these Begonias, like other species of the genus grown for their flowers, do not require nearly so much atmospheric moisture as is often accorded to them. In potting, use a good mixture of peat, loam, and sand, the first named material being allowed to predominate in a slight degree. JAMES HUDSON.

Gunnelsbury.

Nymphæa gigantea.—In his notes on the "Marianne North Gallery" at Kew, Mr. Goldring mentions this beautiful Nymphæa, Miss North's painting of which apparently represents one of the finest forms of this very variable species, and he adds that this major form ought to be cultivated at Kew, where at present only the smallest variety is represented. Whether the differences in size are permanent characters, or whether, under favourable conditions, the smaller kinds would develop into large flowering ones, and so prove that weakness alone is the cause of the flowers being so small, I cannot say; but certain it is that plants, or rather tubers, have again and again been imported, and said to be the largest form, yet on being started here they have invariably proved to be what is known as the minor variety. At Kew there are now several plants imported, I believe, last year as the large kind, but which are as yet quite as small both in foliage and flowers as the small variety. Possibly the long journey together with the change of situation may have weakened the plants, and this year they may produce leaves and flowers of the largest size, which in the one is 18 in. across and the other about 1 ft., or almost as large as the flowers of the Victoria regia. I shall be obliged to any Water Lily cultivator who has grown the large form for any information as to its requirements, &c., though, unless it be at Oxford, I do not know where this fine plant is likely to be growing. *N. gigantea* is the only Nymphæa found in Australia. Whilst writing of

flower-buds, which bear a close resemblance to those of that Princess among Roses climbing Devonians. They are, however, much smaller and of a paler cream colour. The fully expanded flowers become much whiter and are semi-double. As a rule the buds are produced singly, but pairs and trises are not uncommon. Of its perfume very little can be said, it being very faint indeed. Of its perfect hardiness there can be no doubt, for it has stood all the frost we ever had in this country and without injury. It strikes readily enough from cuttings of ripened wood inserted in the open ground in early autumn.—EDWIN JACK-SON, Llandegai, Bangor, Carnarvonshire.

Old double yellow Rose.—Mr. D. T. Fish inquires (p. 389) whether any of your readers can teach him the art of growing this Rose to perfection; but in my opinion the question is useless, inasmuch as no art has been discovered to keep alive plants which have reached the term of the existence allowed to them by Nature. In THE GARDEN of September 7, 1878, I read an article on this Rose, written by the Count de Torre, in which he stated that it flowered admirably with him near Lisbon. As for many years I had not seen a bloom of it, I wrote to him, begging him to send me a plant of it, to which he immediately replied by sending me two plants, which arrived in good condition. One of them was planted against a wall amongst other varieties; the other in a border amongst shrubs. They grew well the next year, but since have been constantly declining, and have not shown any flower-buds. This cannot be attributed to soil or climate, because all kinds of Roses thrive well in Lyons, and particularly in my garden. I must, therefore, persist in my opinion that *Rosa sulphurea* has reached the term of its existence, like the old centifolia, which is nowhere to be met with, splendid as it was when it served Van Spaendonck and Jean Vandyck for their immortal pictures.—JEAN SISLEY, Lyons.

Brier Roses.—We wish all who regard the Drumhead Cabbage as the ideal type of the perfect Rose had seen a bold wreath of Brier Roses which came to us from the gardens at Munstead—Briers which are really little double Roses, red, yellow, and white. The yellow and the palest golden and white are perhaps the most beautiful, with their pretty little flowers and prettier buds, and the singles come in well as a variety. We believe these Briers to be very much neglected; they deserve to be well grown, and those who see them so grown will never begrudge them a corner or two. We admire the Drumhead Cabbage type as much as anybody, and merely say a few words for other forms. We do not recommend the pretty Briers for show, though we have not for a long time seen anything so handsome at a flower show as this wreath, about 2 ft. long, of yellow, pink, and white Brier Roses. Like other things, they may be well or ill grown. The place they deserve is perhaps not large; but those who seek variety should not forget them, but plant a group of them instead of some of the shrubs that are planted *ad nauseam*, and often by thousands in many country seats. Our love for Roses should not be limited to those of the merely "show" type. We have been too long in the hands of a few exhibitors, who lay down the law for us as to what a good Rose is from their point of view. But the Rose is grown by us not for its beauty in the garden, and for its blossoms on our tables. Compared to this, the importance of the showing business is as a drop of water to the lake. The true test for a Rose is its beauty, vigour, and bloom in the garden. We should seek variety, and not similarity in form; and therefore we say a few words even for the modest Brier Roses.—Field.

Andromeda (Pieris) japonica.—In an account, with wood-cut, published in a contemporary recently no mention is made of the fact that the merits of this bush were first made widely known to horticulturists by a coloured plate published in Vol. XII., p. 424, of THE GARDEN. The drawing was made from specimens

gathered in the nursery of MM. Thibaut & Keteleer, of Soaux, and sent by post to London, where they were drawn by Mrs. Buefield. Previous to that time we had not seen the plant in flower, and struck with its extreme beauty in the early spring after hard weather, felt it deserved illustration. The publication of the general index to the first twenty volumes of THE GARDEN, now in progress, may help to prevent omissions of this kind—the more noticeable, perhaps, as obscure authorities inaccessible to the English gardener are carefully cited.

GARDEN FLORA.

PLATE CCCXLII.—TWO VARIETIES OF CYPRIPEDIUM INSIGNE.

I HAVE now before me a fresh flower of *C. insigne* var. *Maulei* (from a well-authenticated plant from Lady Dorothy Neville's collection). It is a fine flower, $\frac{3}{4}$ in. from the toe of the slipper to the point of the upper sepal, and the natural spread of the petals is about the same. In general appearance there is something of *C. villosum* in the form or contour of the flower. The slipper viewed from the front has the proportions of a donkey's head and ears, the lateral ear-shaped lobes being widely divergent; colour of light olive brown, very glossy; the petals are much crimped, or sharply undulate along the upper margin, rather less so along the revolute under margin (which cannot be seen without reversing the flower), colour of petals pale olive green, with light amber veins; the erect upper sepal is singularly like that of *C. villosum* in form and general contour, being much constricted below and with revolute margins near the basal portion which makes this restriction more apparent; the margins near the apex again become constricted, the intermediate or central portion bellies out in a fiddle-like manner just as in *C. villosum* or *C. Boxalli*; centre and base of the sepal bright pea green, upper portion and margins as far as the constricted portion white, heavily and irregularly blotched with purple brown—a few of the upper spots appear pure purple on the white ground colour. The lower sepal is very large in proportion to the upper one and fully twice the size (area) of the same organ in *C. punctatum violaceum*. Its margins are much undulated, with the usual infolding on each side at the apex—colour very pale olive green, with dull purple brown blotches, which have an inclination to run into lines near the centre.

Now, on holding a flower of *C. Maulei* sideways so as to obtain its profile, the upper and lower sepals are seen to be distinctly revolute, but on holding a flower of *C. punctatum violaceum* in the same position the upper sepal is seen to be but slightly revolute—indeed, it is its peculiar flatness which constitutes one of its principal charms; the lower sepal has its margins actually curving inwards, a condition which gives quite a different appearance to the lateral view of the flower. Little differences of this kind are too often overlooked, and yet they do not unfrequently, as in this case, add or detract much from the beauty of the flower. *Vanda tricolor* and *V. suavis* lose much of their beauty by having revolute margins to their perianth segments, by which much colour and size are lost.

The ovary in *C. Maulei* is fully $\frac{1}{2}$ in. longer than that of *C. punctatum violaceum*, stouter and more profusely covered with short, blackish-purple hairs. The spathe or sheath at the base of the ovary is as large as the lower sepal, but infolded around the ovary so that only half of it is seen in profile. It is apple-green at the apex, and heavily painted with dark purple at the base, this basal colouring

shading off into a cloud of minute dots which suffuse half the spathe or more, thus softening off the deep basal colour into the apple-green of the apical half. Flowers solitary, supported on a scape from 10 in. to 15 in. in length, and of fully twice the thickness of that of *C. punctatum violaceum*. The variety *Maulei* is synonymous with *C. i. albo-margatum*.

C. i. PUNCTATUM VIOLACEUM (syn., *C. Chantini*).—Thanks to Mr. O'Brien, I have now also before me a superb bloom of this variety, side by side with *C. Maulei* its superiority is at once apparent. The bloom is actually smaller in general measurements, being only 4 in. from the toe of the slipper to the apex of the upper sepal. The spread of the petals is naturally 4 in., as before. In general appearance the flower is that of *C. insigne*, there being nothing about it that suggests *C. villosum*, and when one views the slipper from the front the resemblance suggests the appearance of a crop-eared pony, rather than of a donkey or of a bat, with widely divergent ears. This difference is very essential, and urges itself upon one very forcibly as the process of studying the individual flowers goes on. I have said that the measurements of the two flowers are different, those of this variety being actually less than those of *C. Maulei*, and yet the superficial measurements—I mean of actual surfaces presented to the eye from any one point of sight—are really larger in what at first sight is the smaller bloom. *C. punctatum violaceum* has a singularly flat flower, the petals and sepals lie in the same plane; then there is an immense gain in the upper sepal being simply roundish, oblong and flat, having no constriction at the base. There is also more light in the flower, and more dark colouring, all of which means greater brilliancy taken as a whole. The lip is much smaller and more compact, the colour in front being bright chestnut and very shining. Petals boldly undulate on both margins, but there is but little of the minute crimping (so apparent in *C. Maulei*) along the upper margin near the base of the petal. The ground colour of the petals is light olive-green, shaded and netted with dark under veining. The bold upper sepal is oblong, erect, flat (showing none of the basal constriction so apparent in *C. Maulei*), and the white apex and margins, which latter extend to near the base, are very bright and pure. The lower central part of this upper sepal is occupied by a suffusion of pea-green, on which are laid four bold longitudinal rows of purple-brown blotches, which change into pure lilac-purple as they emerge upwards into the white apical portion of the sepal. On either side other blotches and spots are disposed rather irregularly; but with an evident inclination to follow the green nerves or veins which run upwards in a parallel manner through the pea-green suffusion on the upper sepals of both varieties. On holding up a bloom before a lamp this green veining is quite a charming and lovely feature, as seen meandering through the green suffused blotch and finally emerging and becoming lost in the icy or crystalline whiteness of the sepal. On comparing the flowers of both varieties in this way it is quite interesting to note how the blotches in the present variety fall into a linear arrangement, while those of *C. Maulei*, without positively departing from it, yet appear as if promiscuously scattered, except just where they emerge into the white apical portion before alluded to.

The history of *C. punctatum violaceum* is this: In 1855, in a small importation of Orchids made by Messrs. E. G. Henderson, a small plant of what was supposed to be *C. insigne*, was found. On its blooming, however, its superiority was so striking that the plant was marked, and slowly increased until about 1869, when a limited



1. CYPRIPEDIUM INSIGNE MAULEI. 2. C. PUNCTATUM VIOLACEUM

number of plants were sold at five guineas each. This is the plant of which Mr. B. S. Williams speaks so highly under the name of *C. insigne* in the fifth edition of the "Orchid Manual." C. Maule, figured and described in the "Floral Magazine," was, as Mr. Maule informs me, also a plant imported accidentally as a seedling. *C. punctatum* violaceum has, so far as we know, never previously been figured or technically described, although it is now to be met with in many first-class collections, and Mr. O'Brien tells me it is an especial favourite with that Ulysses of Orchid growers, Sir Trevor Lawrence. It is, without a doubt, the finest of all known forms of *C. insigne*, and in one or two continental gardens is grown under the name of *C. Chantini*. On referring to my marked catalogue of the Meadowbank sale, I find that *C. insigne* Veitchianum fetched £23, and I presume it was a fine specimen of this variety.

The annexed illustration shows the relative size, form, and colouring of these two beautiful varieties of *C. insigne* better than any description can possibly do.

CULTURE.—Of all Orchids *Cypripedium* *insigne* and its varieties are the easiest to grow in a really successful way. In a window or in a well-lighted sitting-room *C. insigne* is perfectly at home, and will, with proper attention as to watering, and sprinkling occasionally to rid the leafage of dust, increase in size and flower regularly every winter. Of all Orchids I know, *C. insigne* is the one to which the heat and moisture of a close and heated Orchid house is absolute ruin so far as the production of flowers is concerned. A light and airy greenhouse from which frost is excluded suits it admirably. It is not particular as to compost. I have seen it equally well grown in pure loam, pure peat, common garden soil, potted like a *Fuchsia* or scarlet "Geranium," peat fibre and bone dust, peat, loam and sand, loam and dried cow manure, peat fibre and horse droppings, sphagnum Moss and charcoal, crocks and Sphagnum Moss, and, finally, Cocoa-nut fibre surfaced with growing *Selaginella* *Kraussiana*. *C. insigne* has, so far as I know, only one fault—it is too common, and, therefore, apt to be neglected. The fact that of all Orchids it is the most common is only another way of saying that it is of all others most vigorous in constitution, and so defies all bad and indifferent culture, growing even under no special culture of any kind. Common as is the type, it will be some time ere either of the two varieties now figured are too abundant, although they are equally robust and far more beautiful than their ancestral relative, *C. insigne*.

F. W. B.

London parks and open spaces.

From the report of the Metropolitan Board of Works just published we learn that the various metropolitan parks and recreation grounds under the Board's control comprise altogether an area of 1697½ acres, or a little over 2½ square miles; and, when it is remembered that what is known as the metropolitan area, defined by the Metropolitan Local Management Act, 1855, and under the jurisdiction of the Board, extends over 122 square miles, and has within its limits a population of more than three millions and a half, it will be acknowledged that the aggregate of these pleasure grounds is, after all, but small, and that were it not for the royal parks, which happily may be regarded as assured public possessions, and for a few commons in and near the outskirts of the metropolis which are not under the Board's control, London would, in proportion to its size and population, be hardly so well provided with places of open-air resort as some other cities and towns. The places of recreation maintained by the Board are Finsbury Park, 115 acres; Southwark Park, 63a.; gardens on the Victoria, Albert, and Chelsea Embankments, and in Leicester Square, 14a.; Blackheath, 167a.;

Hampstead Heath, 240a.; Shepherd's Bush Common, 8a.; London Fields, 27a.; Hackney Downs, 50a.; Well Street Common, 30a.; North Mill Field, 29a.; South Mill Field, 28a.; Clapton Common, 9½a.; Stoke Newington Common, 5½a.; waste land at Dalston Lane and Grove Street, Hackney, 1a.; Tooting Beck Common, 144a.; Tooting Graveney Common, 63a.; Clapham Common, 220a.; Bostall Heath, 55a.; Plumstead Common, 110a.; Shoulder of Mutton Green, 4a.; Wormwood Scrubs, 194a.; Eel Brook Common, Parson's Green, 14a.; Brook Green, 7a. Total, 1697½ acres.

FLOWER GARDEN.

NOTES ON HARDY FLOWERS.

PÆONIA COMOSA is by far the most lovely of the *Pæonies*. It has all the vigour of the coarser kinds, but it is a plant of the most refined beauty. The flowers are large, single, and pure white, with a cluster of golden anthers filling the cup like those of a Water Lily. In addition to its other charms it has a delicious scent. Among all the charming and rare things in Dr. Lowe's garden at Wimbledon I saw nothing last week of such striking beauty. *Cistus salvifolius* is another pure white flower with a golden heart, a combination which exists in so many of our choicest flowers, such as *Anemone Honorine Jobert*, the Water Lily, *Ranunculus amplexicaulis*, and a great many others. It is false heraldry to charge metal upon metal, or upon argent, although in the oriflamme, dear to the Bourbon heart, it was done in defiance of heraldic law and with the best effect, but there is no rule against it in Nature, who is most lavish in her choicest tinctures. This *Cistus* is one of the best in foliage and flower. *Cistus luscianicus* is very lovely, not so large as *ladaniferus*, and with a carmine spot at the base of the petal, where the latter carries a chocolate blotch. The foliage is glistening dark green. *Linaria tristis* is not commonly seen. It sows itself freely through the borders as an annual, and is a pleasing companion to *L. alpina*. But its colouring is not so gay as the purple and orange of *alpina*, being an arrangement of chocolate and yellow. *Pentstemon ovatus* is, if not the best of its genus, at all events the best blue kind. *Allium narcissiflorum* is very interesting and pretty, more like a *Sparaxis* than an *Allium*, with a drooping bell-like head of clear rose. It is one of the very few *Alliums* worth growing. *Rubus kantschatkianus* bears pure white flowers, and is worth growing in the wild shrubbery, as is also another *Rubus* in Dr. Lowe's garden with bright yellow fruit of the colour of a *Kerria*. The fruit is fully ripe now, and is very palatable with a flavour of *Cranberries*.

SALMONICEPS.

DAY LILIES.

AMONG hardy border plants, the Day Lilies (*Emmercallis*) make a fine show, especially *H. lutea*, which is, perhaps, the richest and most beautiful amongst them, sending up, as it does, a profusion of very bright yellow flowers. In addition to being one of the best for borders, this kind is also of great value for pots for forcing, as, being naturally early, it may, with very little forcing, be had in bloom by March, when it makes a fine show in a greenhouse. If wanted for this kind of work, the best way is to grow the plants in good soil in an open, sunny spot, and take them up in the autumn, when they should be potted and placed in cold frames, or plunged out in some sheltered spot, to be drawn from when wanted. Another kind that is quite worthy of pot culture is *H. Kwanso variegata*, which in appearance is almost equal to *Pandanus Veitchii*, so rich is it in its markings. This, too, always grows strongest and best planted out and taken up, and,

if forced, the colouring of the leaves is exceedingly delicate, and the whole contour of the plant particularly striking. The green form of this *Emmercallis* attains a great size and makes a noble looking object in the foreground of shrubbery borders, and is well adapted for planting in semi-wild places, where, from its bold, strong habit, it is quite able to thrive well and hold its own without having any care and attention bestowed on it. *H. fulva* is also a very robust kind, and succeeds equally well with the last named if planted in similar positions, but the best for beds or flower borders are *H. Sieboldiana*, *H. lutea*, *H. flava*, and *H. Thunbergi*. These are all of moderate size, ranging from 1 ft. to 2 ft. high, and are compact and close in their manner of growth. The *Emmercallis* admits of ready increase by division, which may be effected at any time during the winter or spring by means of a sharp spade, as the crowns may be cut clean through without any risk. Day Lilies, one and all, like good loose, open soil in which they can send their roots well down and find plenty of moisture. A good situation for planting the strong growers is near the margins of ponds, where the plants, from having long flag-like leaves, look quite in character.

S. D.

ALPINE PLANTS IN BORDERS.

DURING the past six years I have been making some experiments in growing alpine flowers here in an exposed border at an altitude of 1000 ft. above sea level. The soil is a sandy loam, naturally well drained, owing to sandstone rock below it. I do not attempt to form a rockery, but I give each alpine, in the front of the border, a rough boulder stone for its protection, and with these rock-shelters the plants seem to thrive far better than when they were grown in the ordinary way. During long dry weather these shelters harbour moisture, and for low growing plants, such as *Androsaces*, *Drabas*, and others, they keep off the tearing winds. I find certain families do better than others, pre-eminently the *Dianthus* and *Campanula*. All bulbs multiply astonishingly, notably the *Narcissus*, while an edging of *Crocus* seeds so freely that the young seedlings sprout up annoyingly among the small plants near them. I have had very few failures among the alpinists. I have tried to grow, and I attribute most cases to the specimens sent from the nurseries which arrive in very small pots after an existence in a cold frame. I tried cold frames for alpinists with poor results. This year *Androsace carnea* and *Soldanella montana* flowered beautifully in the open after sulking in a frame. The same with *Silene maritima* alba and the double blue *Hepatica*. In fact, I have found coddling to be a complete mistake.

Just now the border is a blaze of colour. *Phlox Nelsoni* side by side with *Lithospermum prostratum* is covered with flowers. At the back *Aquilegia chrysantha*, *cerulea*, *Anthriscus*, *Trollius*, *Thalictrum*, *Veronica*, *Pyrethrum*, *Ranunculus acrifolius*, *Potentilla*, *Lychnis Viscaria*, *Emmercallis*, *Geums*, *Delphiniums*, *Cheiranthus alpinus*, *Centaurea alba* and *rubra*, *Brodiaea grandiflora*, *Asphodelus ramosus*, coupled with clumps of double *Narcissus poeticus*, are all bursting into flower. *Campanulas* are rapidly coming on, and, beautiful as the *persicifolia* group is, I think *C. soldanellaeflora* and *C. pulla* are the most taking. *Aster alpinus* albus does not seem to be commonly grown. I prefer it to the blue variety, and it is as easy to grow. Altogether I have about 160 yards of this border show, and it is never dull, and never without interest, while it gives no trouble but weeding. In the autumn I put rotted manure at the back where the stronger growing plants are, but I never disturb the smaller alpinists.

A great deal is written about soil for these things, but I fancy drainage and altitude are the principal desiderata. We have severe cold in winter, but never damp cold. Evergreens have not been touched during the past years. This winter a *Eucalyptus globulus* left out in the garden to die has survived, and is doing well. Pentstemons also that were left untouched are growing luxuriantly. Trilliums have failed, but I have no shade nor shelter for them. In fact, the border is exposed on the hillside, getting every breath of wind and every gleam of sun; and this, I fancy, is the cause of its success.

R. A. GATTY.

Bradfield Rectory, Sheffield.

PRIMULA DENTICULATA.

THE different treatment which this plant gets in different gardens has often surprised me; and, although I am much opposed to pot culture in the case of plants which have any claim to be called hardy, I must say that my observations have everywhere led me to believe that the best place for this Primrose and a number of others, either species or varieties, coming from the same quarter—the Himalayas—is a cool frame. With these Indian Primroses I do not think that the character of the soil need be the first consideration, for wherever failure occurs it may, I think, be traced to the defectiveness, the changeableness of our climate. For some time I thought that the hot, dry atmosphere of the south of England, especially the eastern portion of it, was solely the cause of failure. I had planted it in a well-drained shady position; and although it survived the winters of 1877-78-79 admirably, and showed well during the earlier spring months, yet when May and June came signs of exhaustion through drought became distinctly evident, and watering was of no benefit to it. What few plants remained the succeeding summer I determined to try in a cool retentive loam, adding peat in order to retain moisture. Some were planted in shade, others in full sunshine. A luxuriant growth was the result, and I thought I had hit upon the right plan at last. The finest foliage occurred in the shade. However, when winter came they suffered so much that in spring they were beyond recovery. In an amateur's garden I discovered amongst overhanging trees an old frame containing, besides fine examples in pots of *Primula denticulata*, some of the rarer British Orchids, *Cypripedium spectabile*, *Cyclamens*, all in good condition, and the very best specimens of those lovely members of Primulaceae, *Soldanellas* and *Dodecatheons*. What little assistance our climate requires in the case of these plants can be easily had in the shape of a cool frame, abundance of water in summer, plenty of light, shading, and comparative drought in winter. Kinds worth growing are *P. denticulata*, *capitata*, *purpurea*, and *pulcherrima*. There are others, but these are representative.

CHLOROPHYLL.

TUBEROUS BEGONIAS AS BEDDING PLANTS.

AFTER visiting to-day the flower garden attached to Rathronan Manor, a few miles from this town, I resolved to bring under your notice one special feature about which I cannot help thinking many have hitherto made a mistake. I allude to the general custom hitherto followed, and the advice too generally given to allow tuberous Begonias to start naturally into growth in spring. And first a word as to what caught my attention. In the pleasure ground on this, the first week in June, there are several large beds of these Begonias, perfect masses of bloom—something like what one observes two months hence under the starting-naturally treatment just referred to. Those in my beds of the same kind allowed to commence growth in spring without heat will certainly be on better the first week in August than those I have just seen. The question, then, at once suggests

itself. Is the treatment hitherto recommended a mistake? I say, without hesitation, I think it is. The vast majority of tuberous Begonias that may be raised effectively for bedding-out purposes—and the number is increasing every year—go to rest in autumn, and can, with a limited increase of temperature, say from a mild hotbed or a fire-heated pit, be started into growth the first month of the year, or as soon as convenient afterwards. No flowering bulbs bear gentle forcing better than these Begonias, and this is the custom successfully followed at Rathronan Manor. Manure bed frames are here used, and active growth is proceeding from February onwards, and this enables the plants to be transferred to the flower garden any time after all danger from frost seems past—say, the middle of May—the plants having been previously slowly hardened off in vineries or in a greenhouse. So much for the method adopted and its practicability, and now permit me to note what I consider its advantages. The great objection urged against bedding-out in general, besides the necessary trouble in winter-nursing, is the very limited time during which it lasts. Tuberous Begonias may, as generally treated, have a glow of beauty in the middle of July; but let me ask, why not start them early? why not have them commencing to flower by the middle of May? and why not transfer them at once to the open ground? and inferentially, why not have two additional months of brilliancy and beauty—that is, why not have them blooming from the middle of May to the middle of July instead of commencing to bloom at the latter date? This is what is being done here now, and who will say it is not an improvement? As I have said through your columns before, I believe the tuberous Begonia (from its easy treatment, accommodating character, but especially its great beauty and brilliancy) is the flower of the outdoor garden of the future, and as a devoted admirer and small grower, I draw your attention to this phase in its treatment and in its interest, and in order to make these remarks more general let those in towns who have not frames start their tubers early in a box in a warm window.

Clonmel.

FORGET-ME-NOTS ON THE GRASS.

I DO not think "J. S. W." will experience much difficulty in naturalising *Mysotis sylvatica* in the Grass. Need I remind him that this is a native species, and that its home is amongst herbage, evincing, as its specific name indicates, a partiality for the shade afforded by trees, not, however, placed too thickly. Cultivation has considerably tamed down this Forget-me-not, which, when grown in its native haunts, extends its shoots with the growth of the Grass and flowers just above it much as *Veronica Chamædrys* and *Stellaria graminea* do. This Forget-me-not varies infinitely according to soil and situation, and for this reason it is a good subject for naturalising amongst Grass. As seedlings of this species spring up amongst the Grass in a wild state they should do so when naturalised, but it is evident that the herbage should not be cut, as before the seeds are shed or find their way down to the soil, they would in all probability be carried away in the cut Grass. I should like to know if anyone has tried *Mysotis dissitiflora* on the Grass, and with what success. I am not so sanguine about this kind; it is too tender, and does not seed with the same freedom as *sylvatica*. Probably, however, in shelter, such as that which Grass and trees afford, it might prove more happy and enjoy greater immunity from disaster than in the open border, which, judging from the character of the Forget-me-nots, can scarcely be the position most in accordance with its needs. It is at any rate worthy of trial. Has Mr. Fish, who has written so well and so often about this beautiful little spring flower, experimentalised in this direction?

J. CORNHILL.

[The wood Forget-me-not we have seen several times in great abundance and beauty grown from seed in woody places, afterwards establishing itself.—ED.]

Utility of stem-roots on Lilies.—I was forcibly struck with this fact a few days since, and in this way: I was transferring large, strong bulbs of *Lilium auratum* and *L. lancifolium* album from 10-in. pots to boxes, both to give more space for root development and for convenience in church decoration afterwards. Judge my surprise, in two instances, to find what seemed—and what really were—two robust, healthy-looking Lily bulbs, without a single sound root from the base of the bulb. Some roots and rootlets had evidently developed, but from moisture or other cause had decayed. To-day I lost a fine specimen of *L. chalcedonicum* completely in the same way; fortunately, the stem-rootlets came to the rescue in the foregoing cases. This conclusively proves the efficacy of those small fibrous roots, and the functions they perform.—W. J. M., Clonmel.

A lost Primrose.—Can any one give me information concerning a Primula which was in cultivation in the neighbourhood of Dublin some years ago? A friend who then had it in her garden, but has since lost it, tells me it was known as "*Primula tatarica*," and describes the flower as being very double, of medium size, and in colour a lightish brown, nearly coffee-coloured, with a distinctly pencilled edge of golden yellow. The plant was of a moderately robust habit, and the flowers, each upon a single stem, were borne well above the foliage, which was not in any particular distinguishable from that of the common double lilac or white of our gardens. There can hardly be any question of its having been a true Primrose, that is, so far as one can judge from mere description, and in proof of its having actually been in cultivation up to a comparatively recent period I may add that within the last four or five years a gentleman entered the establishment of a well-known Dublin florist, and producing some blooms such as I have described, of which he stated he had seen several bunches among the table decorations at a school feast in one of the poorer city parishes on the previous evening, requested the aforesaid florist to procure him some plants. It is needless to state that every effort was made to trace the flowers to their parent plant, but unfortunately without success, as such quantities of flowers had been sent in from various private gardens to the matron of the institution, that she was unable to say from whence the Primroses had come. Possibly if it has not now quite disappeared from cultivation, this little flower may still be found in a neglected corner of some old-fashioned city garden.—W. B. H.

Phlox Drummondii.—For several seasons I have observed this well-known annual used with excellent effect by an amateur who has only a very small garden—in fact, simply a little plot of Grass with one flower bed in the centre and a border all round for mixed flowers. It is, however, kept with such extreme neatness and order that passers by generally stop to gaze at it. During summer and autumn the centre bed is one of the loveliest mixtures of colour imaginable, yet its occupants are only the produce of a single packet of seed of *Phlox Drummondii*. In the labour and care bestowed on this little garden lies the secret of success. At the end of April or beginning of May early-flowering bulbs are lifted from the bed, removed to the kitchen garden, and laid in there; the soil is then deeply cultivated and mixed with some rich manure, put deeply down with the second spit. Some of the old soil is removed from the surface, and a barrowful of good fresh material is added at the top to plant in, last year's Cucumber bed being the material employed. The seed is sown in a box set in the kitchen window (the only glass available) in the end of March, and when the young plants are strong enough they are set out-of-doors under the shelter of a wall to get hardened off. When the bed is ready the seedlings are carefully planted out about 6 in. apart all over the surface, and with careful attention to watering, stirring the soil, &c., they soon cover the bed, the shoots being regulated and secured in their positions by means of hair-pins. As the flowers fade they are care-

fully removed, as it is seed-pods that bring the display of annuals to a close early. Thus attended to, they continue to flower until quite late in the autumn.—JAMES GROOM.

TREES AND SHRUBS.

PRUNING WISTARIA SINENSIS.

WHEN in full flower, this is one of the noblest plants we have for covering walls and trellises and high archways. Being a free grower, it soon covers a large space if each year's growth is allowed to grow its whole length; but when pruned in the winter, the shoots are often left too long. It does best when they are cut moderately short. It then flowers freely, and produces strong side shoots, or rather breast-wood, which should be cut back to three eyes the first year, and spurred in short afterwards. Fine racemes of beautiful pale blue flowers will then be produced. Long rods, nailed to walls or tied to trellises, look naked; but, well spurred in, they produce from nine to twelve flowers upon each spur at one time. This plant will grow and flower freely upon any aspect, and if planted upon different aspects, it may be had in bloom for a long period. We have a fine plant of it here upon a south and west wall in full bloom at the present time, and the same plant is also growing upon a north and east wall, where it commences to bloom when the portion growing upon the south and west aspects has finished flowering, thus prolonging its beauty till late in the summer. Often by the time the part growing upon the north wall has finished flowering, we get our second crop of bloom, generally a good one, upon the south wall. This, I believe, is one of the largest Wistarias in the country. It has been planted a great number of years, and is very large. I am told that the original stem of this plant was killed by the frost in 1860, and still the present stem measures 4 ft. in circumference at 2½ ft. from the ground line, and several of the main branches are 2 ft. and 2½ ft. in girth. This tree, for so it may well be called, is trained upon several portions of wall ranging from 12 ft. to 6 ft. in height. The total length of the different walls and archways which the plant covers, with its numberless racemes of flowers, is 512 ft. It is finer this season than it has been for years. Wistarias are generally propagated by layering one-year-old shoots, which should be done as soon as the wood is ripe in autumn, when they will be rooted the following autumn; they will then be ready to plant into nursery rows, when they should be cut back moderately short, to induce them to produce strong shoots. Plants can also be raised from cuttings made of the ripe one-year-old shoots. Cut them into lengths from 9 in. to 12 in., and insert them in pots filled with light loam and leaf-mould, with a sprinkling of silver sand to keep the whole open. After inserting the cuttings, place the pots in a cold frame during the winter, when the cuttings will soon callus, and may be placed out of doors in summer. The plants will there get rooted, and be ready to plant in nursery rows in autumn, or they may be potted into small pots the first year. Standards are formed sometimes, and are very effective when properly trained, and kept well spurred in during the early stages of their growth. W. CHRISTISON.

The Rookery, Bromley.

A poor Rhododendron.—I send a flower of a Japanese Rhododendron purchased in a seedling state many years ago as *B. Metternichi*. I cannot find, on turning to my garden memorandum book, from whom I received it, but I cannot doubt the correctness of the name under which it came to me. It was carefully protected in a cold frame when in a seedling state and planted in due time, fully named, in the American garden at Coombe Royal. When I moved to this place it was transferred to a large pot and sunk with some others in the lawn. Many buds having for the first time been produced, it was taken up and placed in a light, airy part of the conservatory—the result

you can judge of. It reminds me of a poor variety of the American *B. maximum*.—J. L., *Abington, Torquay.*

THE BUCK-EYES (PAVIA).

THE Pavias constitute a group of trees allied to the Horse Chestnuts (*Æsculus*); indeed the distinction between the two is but slight, the fruit of

shape of a spreading bush with leaves similar to those of the Horse Chestnut, but smaller and bearing reddish brown stalks. Its flowers, which are white, are borne in long erect spikes to which the prominent stamens impart a feathery appearance. Additional interest also attaches to this kind on account of its flowering in July, and often also in August, after the beauty of most flowering shrubs is over. On a moist, somewhat shaded spot it grows



Pavia neglecta.

the latter being prickly, whilst that of the Pavias is smooth. From a garden point of view they may be defined as small trees bearing a great resemblance to the Horse Chestnut and producing red or yellow flowers, which are later in expanding than those of the common Horse Chestnut. A cool deep soil is essential to their well-being; in hot, sandy places they assume a yellowish hue and grow but slowly. As regards nomenclature, some confusion exists, there being two or three well defined kinds from which numbers of hybrids have

freely and throws up suckers in such quantities as to soon form a dense mass; indeed it pushes up shoots so freely from the base that when in bad condition it should be cut down to the ground in spring. Thus treated, it will push up afresh from the base and grow and flower freely. *P. flava*, known in America as the big Buck-eye or yellow Horse Chestnut, reaches a height of from 15 ft. to 20 ft., a good size compared with that of the two other well known kinds, *P. rubra* and *P. macrostachya*. It is a free grower, more fastigate



Pavia flava.

been raised, all differing more or less from each other and from their parents.

Amongst the most ornamental must certainly be named the large spiked Buck-eye (*P. macrostachya*). This species, which is also known under the name of *Æsculus parviflora*, assumes the

than the others, and the leaves are a paler shade of green. The flowers are dull yellow; in short, except for the sake of variety, it is scarcely worth growing. The variety *neglecta* differs but little from the type, judging by the small plants which I have seen of it, but it is said to flower earlier

and to have its yellow flowers marked with red. The red-flowered *Pavia* (*P. rubra*) is altogether a more slender grower than the preceding, the

is preferred, choose good, vigorous scions and cleft graft them in the ordinary way in March, while, as regards budding, it is only necessary to

outlook must be kept to see that they are not destroyed by mice. ALPHA.



Pavia rubra.

branches slighter, and their outline of a more open character. It is also distinguished by the foliage being of a deeper green, and the flowers, instead of yellow, being brownish red. This red-flowered *Pavia* is certainly a pretty little tree, and one very suitable for situations where more vigorous subjects would speedily outgrow the space allotted to them. A variety of it is called *humilis*, and when grafted as a standard occasionally *humilis pendula*. It is weakly in growth, and seldom reaches a greater height than from 4 ft. to 5 ft., but when grafted, as it usually is, at some little distance from the ground, it produces a globular, somewhat pendulous, head. Amongst other varieties, of which there are a great many, may be named *Lyoni*, *carnea*, *purpurea*, and *Whitley*, the last being especially noteworthy on account of its brightly coloured conspicuous blossoms. *P. bicolor* and *discolor* are both shrubs, and very pretty ones too when in flower. Their blooms are more or less marked with red, yellow, and sometimes a purplish tinge, thus affording a pleasing change from the others. What is known as *P. macrocarpa* is supposed to be a garden hybrid between the Horse Chestnut and one of the *Pavias*.

The *Pavias* are all easily increased; the branches of *macrostachya* often root when in contact with the ground, and from the others, when not grafted, suckers with roots attached to them may frequently be detached, while, if such cannot be done, they strike readily from layers. The system of propagation generally followed, however, is to either bud or graft the various kinds (with the exception of *P. macrostachya*) on the common Horse Chestnut with which they readily unite, but grafted plants have always an artificial look about them, and are not equal in beauty to those on their own roots, *i.e.*, when clothed with branches down to the ground. These remarks apply more particularly to the smaller forms of *rubra*, which are handsomer as bushes than with long, bare stems. If, however, it is desired to have them on the Horse Chestnut, there are, as I have said, a couple of ways by which it may be done—either by grafting in the spring, or by budding as *Roses* are done in July. If grafting

choose the time when the bark runs readily. If seeds can be procured in quantity, they should be sown out-of-doors, and covered with about their own thickness of soil; but when few in number,



Pavia macrocarpa.

the best way is to sow in a pan of loamy soil, and place them in a cold frame. In either case a sharp candidissima. I never saw two plants more alike when in bloom.—J. CORNHILL

Habrothamnus fasciculatus.—The panicle of flowers of which you made favourable mention (p. 358) was cut from a plant of this *Habrothamnus*, that has been growing against a south wall for years. Though it gets cut to the ground in very severe winters, it always breaks again from the ground and produces flowers and foliage such as one never sees in plants under pot culture. Almost any good soil suits it. It succeeds as a standard in sheltered situations, but a brick wall with a southern aspect will be found to give the best results.—SANGUINEA, *Trelissick, Truro.*

Shrubs in Devon.—Some shrubs are flowering this year with wonderful prodigality; especially I would name the fine evergreen *Escallonia macrantha*, introduced many years ago by Mr. Veitch, Sen., then of Mount Radford Nursery, Exeter. In the Torbay district it flourishes and blooms with unusual freedom. On the lawn of this villa is one which is 13 ft. high, with a circumference of spreading branches of 60 ft.; close to it is a *Pyrus japonica*, more than 12 ft. high and 47 ft. in circumference.—J. L., *Abington, Torquay.*

Fabiana imbricata.—This is spoken of (p. 394) as being hardy, but is it so in the true sense of the word? If the plant at Kew passed the winter before last in the position described, it may truly claim to rank amongst hardy shrubs, and affords one more instance of a plant being many years in cultivation without its real character being generally known. *Fabiana imbricata* was, I believe, pretty largely grown in nurseries a quarter of a century ago, but it has been in a great measure lost sight of during these last few years, a circumstance to be regretted, as it is really an admirable pot plant, being of easy culture and very effective. I used to plant it out for the summer in an open, sunny situation, and in this way obtained large specimens in one year. By the way, those who would like a good illustration of plant mimicry will find it in the *Fabiana* and *Erica*

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

G. J. SURREY.

THE white, yellow, and bronze-brown colourings of Spanish Iris, about a week later than the blue, are now some of our best room decorations. They are in a glass that allows the bunch to spread at the top, so that each flower stands clear of its neighbour. A large, high glass holds white Foxgloves, with Iris cobalt-blue and the white and yellow Thalictrums. Flowering branches of Portugal Laurel are in large vases of blue and white oriental porcelain. A white china basket is filled with Sweet Brier in flower, and some blooms with foliage of Magnolia Thompsoniana are arranged in an antique engraved glass. Autumn-sown French Poppies are still brilliant in large masses of red and pink, and in continual use on the dinner-table with warm-coloured foliage. The Corn Marigold (*Chrysanthemum segetum*) is another handsome annual for present use, fine in large bunches by itself. Masses of orange Eschscholtzia in three silver bowls decorate a long dinner-table. A large embossed copper holds a white Cactus grouped with Adiantums, and pots of Harrison's Musk are bright and sweet smelling.

FLOWER GARDEN.

W. WILDSMITH, HECKFIELD.

Lysimachia Nummularia aurea.—This is a yellow-leaved sport, obtained from *L. Nummularia*, which grows wild in British meadows; hence it may justly be classed as a weed, but it is also an excellent plant for moist and shady places in the rock garden, and for carpeting the ground beneath the taller plants, the appearance of which is improved by an undergrowth of deep golden yellow, a colour which this plant retains throughout the season. We have used it for edgings and groundwork in the open flower garden, but, being a shade-loving plant, it gets rusty in bright, sunny weather, and is therefore not to be relied upon for such positions—at least, not so far south as Hampshire; northwards it would no doubt prove as useful for this purpose as it does here for undergrowth and rockwork. It is readily propagated by division at any season of the year.

Shrubberies.—Owing to the multiplicity of operations that at this season demand attention, shrubberies are apt to get neglected, and Nettles, Thistles, Dandelions, and other weeds are allowed to run to seed. Of course, this only happens in places where labour is restricted, and where something must be left undone; though, taking into consideration the after consequences, such weeds as these should not be overlooked, for even if time for hoeing or hand-weeding cannot be spared, they may very quickly be prevented from seeding by roughly going over them with a rip-hook till such time as proper attention can be devoted to the work; then the plants should be cleared of all seed vessels and dead branches, irregular growths shortened back, and suckers removed. Clematises and other climbers should be secured to their supports. Ordinary Pea sticks, placed in a slightly leaning triangular form, make excellent supports for shrubby climbers. Late moved plants should be re-mulched, and if necessary soaked with water. Turf verges should be closely cut, and any vacant spaces near the front planted with such biennials as Snapdragons, Canterbury Bells, and Sweet Williams.

Mixed flower borders.—The most showy and most useful flowers for vase furnishing on our borders at the present time are Fyrehydrums and Columbines, the yellow and bronze coloured flowers of the latter being the most novel and pleasing. The Fyrehydrums, both single and double, range in colour from deep crimson to pure white, and in a cut state keep fresh for a longer period than any other flowers I know of; their merits are such as to justify their extended culture. These and many others now need staking and tying, but it should be done as loosely as the safety of the flower-stems

and plants will admit of. Weeds should be kept down and the surface-soil broken, particularly about Dahlias, Hollyhocks, and sub-tropical plants lately planted for autumn effect. Old established plants do not these details of culture; indeed, many thrive best when left for years in an undisturbed state, or with only such attention as to curtailment of growth as shall prevent their injuring adjoining plants. As is the case with many plants this year, Asters, Stocks, and Phlox Drummondii are suffering from the attacks of aphides; they should therefore be syringed with soap-suds two or three evenings in succession, and then well washed with clear water. Owing to the dripping weather, slugs are also extra active, especially amongst annuals; the best bait for them is bran, to which they go readily, and may be caught in the act of feeding any time after dusk or very early in the morning. Plenty of soot and lime thrown about does much to keep them at bay, but rain soon renders both inoperative, hence my partiality for the bran baits.

General work.—This consists in pegging down bedding plants and freeing them from useless flowers, mulching with Cocoa fibre the smaller plants, and keeping the ground about the larger kinds open by frequent stirring. Calceolarias, Violas, and Verbenas enjoy a rich mulching of cow manure or horse droppings; such coverings keep them in vigorous growth and bloom during the hottest weather. Clipping edgings and groundwork of Sedums, Herniaria, Mentha, and the like will also now be engaging attention, also turf edgings and verges, mowing, weeding, and after rain rolling walks.

INDOOR PLANTS.

T. BAINES, SOUTHGATE.

Indoor climbing Roses.—Where Roses are trained on the roofs or back walls of conservatories or greenhouses they are often found to thrive well for a few years and then to get into a stunted, weak condition, making little growth, and equally unsatisfactory in flowering; frequently the cause of this is an insufficiency of manure regularly applied as the roots exhaust it. When Roses are grown under glass, the extra warmth they receive, and the consequently much longer period in each year they are kept on in a growing state tend to tax the roots proportionately more, and unless the soil is kept constantly supplied with the requisite enriching materials the growth necessarily becomes weak, rendering the plants an easy prey to insects that invariably attack weak growth. Another cause of insufficient bloom is the want of enough thinning out of the weak shoots, whereby the energies of the plants, instead of being directed to the support of a moderate number of shoots that would grow to a size able to produce a crop of flowers, are spent in the production of weak, useless wood unable to bloom. Roses when grown indoors, as they are in the open air, are gross feeding plants, that, moreover, generally are subjected to a free use of the knife, and to avoid their getting into the condition described must have very much more manure given them than would be sufficient for almost any other kind of plants cultivated under glass, and after the principal flowering is over they should have all the useless wood cut out and a considerable portion of the old strong shoots annually well shortened back; in this way they make through the summer new wood that will not fail to flower the ensuing season. With that favourite climber Marechal Niel it is more necessary to follow this treatment yearly than in the case of most others. One of the most successful growers of this variety, who has the roof of a very large house completely covered with several plants, cuts them all back each spring after blooming almost as close as Vines in winter after they are pruned. As regards this splendid Rose, under all conditions, either where grafted, budded, or on its own roots, it is so short lived that it becomes necessary to put in young plants at intervals of three or four years, so that they may take the place of those that go off. In winter, before growth begins, is the best

Roadside trees.—The French Department of Public Works reports among other things the progress made in the great national work of planting the leading highways with trees. From this it appears that the total length of the *Routes Nationales*—high roads—is about 25,000 miles, of which 14,850 miles may be bordered with trees. Of this distance nearly 9000 miles are planted, while 5840 miles remain to be done. The number of trees used to form the welcome avenue is 2,691,698.

Prunus triloba.—There are but few more beautiful, hardy flowering shrubs than this, yet, strange to say, one seldom meets with it. For small gardens it has special value, as it does not grow to a large size, forming, when grown as a standard, a dwarf, spreading head. For this reason, when placed in shrubberies where vigorous growing trees abound, it should be brought well to the front, where in early spring, when crowded with snowy blossoms, it forms a conspicuous object. In the standard form, indeed, it well deserves a good position on the Grass; but it should, if possible, get some shelter, for rough winds and heavy rains damage the expanded flowers. On a sunny, sheltered wall this *Prunus* is quite at home, as then it gets the protection which it needs, and the blooms, as a rule, come larger than in the open. It may also be grown in bush form, and it is really admirable for forcing, as it flowers freely in pots in a small state, and requires but little heat to induce it to open its blooms. The same plants may be used year after year if carefully hardened off, plunged, or planted out, and well fed in summer, but it is better to have two sets, allowing them one year to recuperate.—J. CORNHILL.

Thorns, white, pink, and crimson, in old-fashioned country parks, have been very beautiful this season. When additions are made to parks, by taking in arable or pasture fields, some of the Thorns in the hedgerows are, as a rule, retained, and if carefully set out in groups they soon produce a picturesque effect. The straight lines are easily broken up; and even if young trees are planted it does not take many years to get them up to a good size. In planting, take out large holes in the autumn and then fill with good soil; either three, five, or seven plants make pretty groups, planted from 20 ft. to 30 ft. apart. Half-standards or bushes are best; they must be carefully staked, and the stems protected from cattle or game. I like to see the colours kept separate, rather than mixed up in an indiscriminate way, and the white variety, that is so very lovely, should predominate. Groups or single specimens of pink, scarlet, and crimson, if judiciously placed, are very effective. Paul's Scarlet Thorn with bunches of double flowers, each nearly as large as a Banksian Rose, is well worthy of a place in even the smallest garden; for when out of flower its clusters of berries are very ornamental.—JAMES GROOM.

SHORT NOTES—TREES AND SHRUBS.

New Weigela.—Enclosed is a species of Weigela from Japan, of which we have now bushes covered with flowers. The latter are pure white, and then turn to rose and crimson. (Seems to be distinct, but will require to be better grown. From the New Plant Company at Colchester.)

Philadelphus microphyllus.—This new Californian shrub, which is quite hardy here, is now showing its first flowers, which are deliciously scented, and as large as a shilling. The scent, which is strong, is something like that of the Strawberry. It is a pigmy shrub, well adapted to adorn even a small rockery. It has been introduced into Europe by Professor C. S. Sargent, of Harvard University.—MAX LEITCHLIN, Baden-Baden.

Ivy.—I planted two plants of a small-leaved Ivy on a north wall two years ago, and now they are producing large leaves, and different in shape from what they used to be. I planted in peat and loam, with a little manure. What has made the foliage so much larger?—G. C. [The variety appears to be *Cenwoodiana*; it has outgrown its original character through being too highly fed. The difference in the size of the leaves sent is doubtless attributable to this cause.]

time to add new soil and manure, but where the plants are at all weak they should now at once be assisted by heavy top dressings of manure—over which for appearance sake 1 in. of fine soil may be spread; this will be washed down to the roots in the process of watering, which, with diligent attention as regards keeping them clear from insects, will maintain the requisite strength.

Pelargoniums.—Zonal varieties wanted for flowering in winter should be so treated as to insure the pots getting well filled with roots, and the whole growth thoroughly matured before autumn; this is of much more consequence than studying to get the plants large, as if at all in a soft, over-verbose condition they will run off to leaf-growth as soon as subjected to warmth in place of flowering. To avoid this, all young stock for winter blooming should be at once moved to the pots they are intended to occupy and free growth encouraged, after which they ought to be placed out-of-doors in an open situation under the full influence of the sun, and kept there until there is danger from frost. The earliest flowered portion of the stock, such as the London market growers cultivate, should, as soon as they have bloomed, be fully exposed out-of-doors so as to ripen up the growth previous to heading them back; if this be done in good time they will break into growth, and can be reported sufficiently early to admit of their gaining the needful strength before autumn.

Salvias.—These, if grown in pots, ought to be moved into those they are to flower in; the size the plants are required to grow to will determine the amount of root room they should have. The pots ought to be plunged in ashes, choosing a position where they will be sheltered from rough winds, but still where plenty of light will reach them; stop the shoots as often as may be found necessary, and never allow the plants to want for water, otherwise the foliage is sure to be injured.

Azaleas.—The growth of these must now be regulated. If those that flowered first are wanted to bloom next season earlier than hitherto, and the buds are not yet prominent, they must be kept for some time longer in a house or pit in which a close atmosphere can be secured in the after part of the day by closing the ventilators early. Such plants as bloomed later should now be encouraged to make growth by placing them where a sufficient temperature can be kept up. Syringe freely every day when the house is closed to keep down thrips, and if these or red spider cannot be kept under by syringing with clean water alone, the plants should be dipped or syringed with Tobacco-water, which, although taking more time than fumigating, is nevertheless much preferable, as I have never been able to use as much Tobacco smoke as would destroy the thrips without injuring the leaves. All that have bloomed late and are in want of more root room should now have a shift. Azaleas do not begin to make roots until after they have pushed a good amount of shoot growth, and just after this has commenced is much the best time to pot them. They do with considerably less root space than most hard-wooded stock, but like to be encouraged either with manure water or some of the concentrated manures now so much used.

Neriums.—The individual blooms of these easily-grown plants much resemble those of perpetual-flowering Carnations, and are little inferior to them for cutting, a purpose for which they are in every way adapted. Their erect habit of growth is somewhat against them, but where large, well-furnished specimens exist with suitable treatment they can be turned to good account. Large examples of this description should now be placed out-of-doors in a sunny position, where their further growth will be somewhat checked. If treated in this way and supplied with water enough to enable their bloom-buds to set, shoots taken off with about half-a-dozen joints will strike readily and make nice flowering stock in 5-in. or 6-in. pots. Young plants propagated from small shoots and grown on in little pots should now also be fully ex-

posed to the sun in the open air. Unless Neriums are so managed there is no way of insuring their blooming satisfactorily, as they keep on growing and do not get their growth properly ripened. Medium-sized examples that have bloomed late and that are required to be kept low and bushy may now be well shortened back, and as soon as they have broken afresh should, if necessary, receive a shift. They will thrive in any kind of soil, but moderately strong loam seems to encourage a disposition to flower.

Camellias.—The earliest flowering plants are best grown in pots, as thus treated they can be moved about as occasion requires in order to accelerate or retard their blooming. Any that have already got their buds as far advanced as may be desirable should be placed in cooler quarters, but until in this condition they must not be moved out of warmth, as when once the excitement consequent on their being in heat is stopped they will not bear forcing subsequently; therefore, it is well to note their condition. All that had their growth retarded by late flowering should have sufficient shade to protect their young tender leaves from sunshine. Syringe freely once a day, and see that the roots are kept well moistened, a matter to which it is necessary to pay particular attention.

Room and table plants.—Plants naturally fit for use in this way are by no means plentiful. As a rule those disposed to keep to a single stem, such as the smaller leaved Aralias, Palms, Dracenas, and others of a like character, are the most suitable, and when too large for this purpose there should always be sufficient successional stock to take their place. Amongst Pandanus, P. Veitchii is most liked; where plants of it are nicely variegated and not too large it is very effective, but, owing to its being unable to live out of heat except in summer, it is not so useful as others more hardy. It is, however, easily increased, as it produces suckers freely when it has attained a moderate size. It is not well to allow the suckers to get too large before taking them off from the old plants, as if their leaves have got long and erect they never make such good examples as when struck small. Suckers will root freely treated in the way in which Pines are managed; slip them off from the parent plants, strip a few of the bottom leaves off, and insert them in small pots filled with ordinary loam, with or without bottom heat. There are one or two other species that answer well for this kind of decoration whilst in a small state, of which P. javanicus variegatus and P. Vandermeerschii are the best; they require similar treatment to P. Veitchii.

Cutting back hard-wooded plants.—There are some hard-wooded plants that require a free use of the knife every season immediately after they have done flowering, otherwise they soon get into such a loose straggling state as to be worthless. Amongst these are Polygalas, Pimeles, Dracophyllum gracile, Epacris, Tetraetrea verticillata, Diosmas, Correas, Acacias, and others possessing a similar habit—plants, in short, that annually make shoots of considerable length, and which, if a good part is not well cut back, cannot be kept within bounds. From one-half to two-thirds the length of shoots made last summer should be removed, after which the plants ought to be encouraged to make growth by placing them in a house or pit where they can be kept closer than in an ordinary greenhouse, and be syringed overhead in the evenings.

Solanums.—The berry-bearing kinds of these are most useful when managed so as to induce them to come on in succession. If a portion of the stock has been treated as already directed, they will now be furnished with fruit that will have sufficient time to become fully coloured by the end of September, from which time to the close of the year they are most serviceable for associating with the comparatively few flowering plants that can then be had in bloom. Those later in flowering will follow the first, and if well attended to, will colour their berries towards the close of the year. To have these Solanums in presentable con-

dition, their leaves must be in a healthy green state, as if at all deficient in this respect they are uninviting in appearance; to insure this, as the pots are now full of roots, they must have unremitting attention in the way of supplying water, and they should also have liquid manure once a fortnight.

FRUIT.

W. COLEMAN, EASTNOR CASTLE.

Vines.—When all the Grapes have been cut from the early Vines, examine the inside borders, add a little fresh mulching if they have suffered from the weight of the crop, and keep the roots moderately supplied with diluted liquid to start a flush of laterals, but guard against carrying feeding to an excess that will force a vigorous growth, and so exhaust the Vines after the wood is ripe. Keep the strongest laterals pinched to balance the flow of sap, and preserve all the old foliage by good syringing every evening, or as often as the state of the weather may render atmospheric moisture necessary.

Succession houses in which the Grapes are ripening may have more air by night and by day, with just sufficient fire-heat to keep the minimum temperature at 60°, and when the berries have attained their full size, the afternoon closing may be discontinued, particularly where the colouring process is not going on satisfactorily. If this house contains Madresfield Court Muscats, see that the borders are moist, but not wet, mulch well with some loose non-conducting material, and allow all the laterals and leaders to grow until after the Grapes are cut. The biting north and east winds having kept the external temperature so low as to necessitate sharp firing, spider has become more plentiful than agreeable, and so rapidly does it spread under the bright and now powerful sun, that vigorous measures must be taken for keeping it in check. As almost every one dreads the use of sulphur, timely syringing with soapy water, the application of clean soft water through a good nozzle every night where it can be applied without touching the Grapes, and generous culture, separately or combined, while helping the crop will tell most decidedly against the enemy.

Late houses.—Muscats, Lady Downes, and other kinds which frequently sould during the stoning process must be closely watched until they are considered safe. Up to the present time the weather has been very cold, and constant firing to maintain a medium temperature has been favourable to the Grapes, as we have not had sudden fluctuations; but any rapid change or disturbance of the atmosphere may bring on the usual fermentation of the pulp surrounding the kernels, in which case it will be well to continue a high night temperature, with diminished atmospheric moisture to prevent the berries from getting cold, and to maintain a steady heat of from 76° to 80° through the day, by keeping the pipes warm, and by increasing or decreasing the ventilation.

Melons.—A few seeds of favourite kinds may still be sown and grown on in pots for filling up the different compartments in which fruit is now swelling off and ripening. All the green-fleshed kinds do best when plunged in fermenting material placed over the bottom-heat pipes, as the roots are then entirely under control, and a flush of fire-heat when they are in flower will always insure a good set, and a continuous circulation when the fruit is ripening will greatly enhance the flavour. For standing on kerbs in Pine stoves, or where it is inconvenient to plunge, I always give preference to scarlet-fleshed kinds, as they can stand more dry heat and are less subject to red spider. They, however, require more feeding from the first, and to counteract the drying influence of hot-water pipes over which they are often placed, shallow trays made of wood and about 2 in. deep are placed under the pots for the reception of a few handfuls of rich compost and the partial retention of liquid manure as it passes away from them. I mention trays advisedly, as roots ramify and feed better in them than they

do in saucers in which the liquid remains and soon becomes stagnant. An old Melon grower has said that all Melons are good when properly grown, and he might have added three-fourths of the Melons now sent to our shows are so thoroughly changed in colour and character, that they cannot be recognised by their raisers. Change of colour is, of course, due to the presence of two or more kinds—perhaps not in the same house, but in the same garden—and deficiency in flavour may generally be traced to an excess of cold water about the roots through the swelling stage and want of bottom-heat when the fruit is ripening. If the grower of Melons would guarantee a true stock he must not grow more than one kind. If he would have his fruit always good he must hold the elements of heat, air, and water entirely under his command, and the latter condition is in no other way so certainly and easily secured as by the adoption of the pot system.

Cucumbers.—Where the bottom-heat is obtained from hot-water pipes and fermenting material combined, the latter should be renovated with fresh fermenting leaves when the plunger thermometer denotes a fall to 80°, and the night temperature of the house cannot be maintained without having recourse to sharp firing, at all times injurious to a moisture-loving plant like the Cucumber; but never more so than when the powerful midsummer sun strikes suddenly upon the roof before the pipes have had time to get cool. If the pots or beds are well drained, it is hardly possible to over-water, or to give the foliage too much atmospheric moisture, provided the liquid for the one and the pure water for the other is applied at or a few degrees above the mean temperature of the house. As the plants will now be producing fruit at every joint, over-cropping must be carefully avoided, at least if they are to be kept on bearing throughout the summer; but where they are shortly to be removed for Melons, a flush of fruit may be taken before they are destroyed. Where manure is plentiful, and frames which have been used for forced vegetables are now at liberty, a few lights under good management will give an abundant supply of excellent fruit until the early autumn-sown plants come into bearing. Instead of pulling down and rebuilding the beds, we dig out a trench 2 ft. in width, the whole length of the frame a little nearer to the front than to the back, fill in with a few barrow-loads of the best fermenting material we have at hand, and turn the plants out on small mounds of maiden loam. A new lining is placed to the front; we cover early every night, and adopt the market grower's system of shutting up about 3 p.m. with sun-heat and plenty of moisture. If straight fruit is required, glasses may be used.

KITCHEN GARDEN.

EARLY VEGETABLES.

SOME of the older varieties of early vegetables still hold their own against newer sorts. As a rule, new varieties should be grown in small quantities until their merits have been fully proved, when, if found to give satisfaction, both as regards growth and quality, they may be grown more largely. They, however, require to be grown two or three seasons before they can be said to have been subjected to a fair trial.

Of Cauliflowers, one of the best of early vegetables after the Broccoli crop is over, Early London is one of the hardiest and also one of the earliest. On this I always depend for my first crop. The produce of seed sown the first week in September and wintered in a cold frame was planted under ordinary hand-lights, four plants in each, the first week in February. From these we commenced cutting fine large heads on May 15, while some of the newer varieties did not commence to form heads until the end of the month, all being under the same treatment. Walcheren succeeds the early sorts when sown in September, and if sowings be made in succession during the

spring months, this sort may be had good all the summer until Veitch's Autumn Giant comes into use. The latter keeps up a supply until early Broccoli is for use.

Potatoes.—For early crops out-of-doors, I find nothing to equal Myatt's Ashleaf and Porter's Excelsior. Both were planted on the same day, and received exactly the same treatment. Porter's Excelsior was dug the same day as Myatt's, the tubers were of medium size, free from disease, and first-rate quality, and I find that they keep well during winter. Rivers' Royal Ashleaf is a good sort to succeed the two varieties just mentioned. It is a heavy cropper, and produces large clean tubers of good quality, rendering it fit either for field or garden culture. Early Rose comes in after Rivers' Ashleaf is finished and before the later sorts are fit to dig.

Carrots.—Carrots are always in demand during the spring months; old ones have to give place to new ones as soon as the latter can be had, either sown or from the open garden. I make a small sowing of the early French forcing one as early in the new year as I can, and this comes into use a few days earlier than the Improved Early Horn, sown at the same time. The early scarlet Horn is one of the best to sow to succeed the very early sorts, which are not profitable to grow in quantities, owing to their not growing so large as some of the later sorts.

Cabbages.—I find nothing to equal East Ham as a good early sort. It is harder than most varieties; indeed, I seldom lose a plant of it during the winter, while other sorts have been destroyed by frost and snow. After growing it for several seasons, I find nothing so profitable during the early spring months; it is seldom any of the plants run to seed in the early spring, while often other sorts growing upon the same ground nearly all run to seed. This spring I cut hearted Cabbages of this sort three weeks earlier than I did of other sorts planted at the same time. This variety is grown extensively in Essex by some of the market gardeners. Early Heartwell is a good sort for spring planting, producing, as it does, fine, close, compact heads of a first-rate quality.

Turnips.—Of the many varieties of early Turnips in cultivation, none surpasses the red-topped Munich for earliness. It comes into use three weeks and sometimes a month before any of the earliest sorts we have in cultivation. I find this variety to be of first-rate quality early in the spring and summer until we get hot, dry weather, when it gets stringy and hard, often having a bitter taste when cooked. This is not, however, I believe, the case in all situations and soils. A good second early cropper will be found to be the early French Turnip, a fine melting sort, to be succeeded by the early white Dutch, one of the best Turnips in cultivation, always boiling tender.

WM. CHRISTISON.

CELERY AND ITS CULTURE.

THE season has now arrived for getting Celery out in trenches, and in order to have it fine and large the plants require a long season's growth before winter sets in. To have them in the best condition for planting they should have been pricked out on a bed of very rich light soil some time back, from which, if well watered before being lifted, they may now be moved with good balls, and getting them up in that way is an important matter, as success depends on their having no check, for if they do they are almost sure to start off to seed. Some growers of Celery plant three or more rows in a trench, which may answer very well if the heads are to be used early, but not so for standing the winter, as the wet gets into the hearts and causes them to rot, and another objection against the practice is that the plants cannot be earthed up so well and easily as they can when cultivated on the single row system, which is the best and most satisfactory in the end. If the dwarf kinds of Celery are grown, the trenches need not be more than 3 ft. apart, which is quite far enough to admit of obtaining

sufficient soil for the earthing up; but if the tall sorts are preferred, it will be necessary to allow 4 ft. between. The best way, however, of growing Celery, and the most economical, as regards ground, is to have the trenches much wider apart and to sow Peas or Runner Beans between; by doing this the Celery gets just the slight shade it likes, and at least double the crop of Peas or Beans is obtained, as by having so much more light and air they bear with far greater freedom. If Peas or Scarlet Runners be not sown, autumn Cauliflowers may be planted, as they will be off in time for the landing up of the Celery; if Cauliflowers are grown, 5 ft. apart will be about right for the trenches. These should not be dug deep and ditch-like, as one often sees them, as they are bad for the Celery, which has then only the bad sub-soil to root in, and consequently it can never be grown so good as it may when planted at a higher level. If the earth is taken out 6 in. in depth and 10 in. in width, that will be ample, and after having done so, a heavy dressing of mild, thoroughly decomposed manure should be spread evenly along the bottom of the trench and dug in, when all will be ready for putting out the plants. This should be done by the aid of a trowel, so as to make good holes to admit of the plants being planted without cramping the roots, and the next thing is to give a heavy soaking of water to settle the soil about them, when they will soon start off to grow. To keep them well at work, it will be necessary to continue the watering at least once a week during dry weather, and when the plants get hold, weak liquid manure should be given instead of the water. As the administering of the one or the other causes much washing of the soil, it is a good plan to mulch along each side of the rows of Celery by scattering leaf-mould along, or, better still, by the use of sea-weed if it can be had, as sea-weed lies close and stops evaporation, thus keeping the roots of the Celery in a constantly moist, uniform state. Earthing up should not take place till the plants are fully grown, but to prevent them spreading too far and to keep the leaves compact, it is necessary to run a piece of matting loosely as a round each plant, which not only answers the purpose stated, but greatly facilitates the earthing when that operation takes place, as the leaves being close, there is no fear of the soil getting between and working its way into the hearts of the plants.

S. D.

A SELECTION OF POTATOES.

"SYLVESTRIS" asks (p. 107) for that which, I fear, no one can satisfactorily furnish. The flavour of Potatoes depends so much upon soils and other circumstances, that ground which will suit one kind will not always suit another. It is, therefore, best for those who grow Potatoes to find out from trial and practical experience what are the kinds which suit their locality best. This may seem to many to be a matter of difficulty, but it is really not so, as if some half-dozen kinds only be taken of each for trial in small quantities, the required selection may soon be made. In Middlesex we have a stiff clay loam, that in good seasons will produce excellent Potatoes, and I think I may say will vie with the soil of any part of the kingdom in developing that pleasant nutty flavour which is always found to be so acceptable in table varieties. Owing to the quantity we plant many are put in with the dibber, but the bulk is planted in furrows, broken up beneath. The tubers are laid into these shallow furrows and covered over with soil from the ridges intervening. I prefer this plan to all others in planting Potatoes, and as I am often compelled to grow Potatoes in the same ground several years in succession, the furrow of one season becomes the ridge of another, and thus not only is all the soil deeply stirred, but as far as possible the Potatoes get a change of ground. Disease is not with us worse than with others. As a rule the crops are far cleaner and heavier, but, of course, if we get a very bad disease season, we have to suffer as others do. My rows are on an average 3 ft. in width, and unless the soil is ex-

cessively rich or the haulm growth unusually vigorous, I think that width is ample. In rich kitchen gardens 4 ft. is none too much, but I object to the growth of main crop Potatoes in such soils; the danger from disease is excessive, and the tubers always lack that flavour found in those grown in open fields or in soil less rich in ammonia. Ammoniacal manures develop luxuriant leafage, but do not assist tuberous growth. Phosphatic manures, on the other hand, do not affect the foliage much, but not only promote the development of a good crop of tubers, but impart to them mealiness and flavour. By mealiness I do not mean that white flowery appearance which many regard as the perfection of a tuber. Mere dryness and whiteness may exist independent of flavour altogether. Those tubers that, while moderately dry, soft, and nutty, have also in them a fair admixture of yellow are invariably the best eating Potatoes. Of round kinds I find such as Rector of Woodstock, Early Market, Radstock Beauty, Grampian, and Bedford Prolific to be particularly good; and of later ones, Reading Hero, Schoolmaster, and Champion are first-rate. Being only just in commerce, I exclude such kinds as Mr. Fenn's New Early Regent and Fiftyfold, both good in quality, as well as several others. Of kidneys the Ashleaf is perhaps our best flavoured early kind, and to this may be added Moun's Pride, Covent Garden Perfection, Edgemoor Seedling, Advance, Woodstock Kidney, and Bountiful (small, but excellent in quality), and for its disease-resisting powers *Magnum Bonum*. Of newer kinds of well proved table quality, "Sylvestris" should try Cosmopolitan, White Kidney, Prize-taker, Red Kidney, and the pretty red flat-round Reading Russet, all kinds possessing the finest table quality, and at the same time large croppers and handsome. A. D.

SEED SAVING.

In a general way it is better to purchase seeds of vegetables than to attempt to save them, as the few required of any one kind renders it hardly worth while going to the trouble of protecting them from birds, which, unless the plants are securely netted, are sure to find them out and devour them. The difficulty, however, of getting a good strain of Cabbages makes people, when they have one, anxious to keep it, but to maintain it pure there must not be anything else of the Brassica tribe near that will come into flower at the same time as the Cabbages, or they will be sure to get crossed, either by the bees or the wind carrying the pollen, in which case the whole stock will be spoiled. To get and maintain a fine strain of Cabbages, the very best of any particular kind should be selected for seed, choice being made of such as have the closest and most compact hearts with few outer leaves. These may either be cut and used now and the stalks saved, or they may be allowed to stand as they are to burst and run, in which case a year is saved, as they run to flower at once; whereas those cut do not start into bloom till the following spring. If the heads are cut, the stalks may be transplanted at once, so as to get them all together in a convenient place for them to stand, which place should be open and well away from the roots of trees, which would, if near, rob them of moisture, and, perhaps, starve the seed. In transplanting the stalks it is necessary to lift them carefully, so as to secure as ball of earth with them, and in replanting they should be dropped a little lower than they have been, and have the soil washed in about them by giving a good soaking of water. Treated in this way, they will get firm hold of the ground, and early next year start strongly and afford fine heads of seed. These should be staked up and tied to keep them erect, and as soon as the pods begin to swell, it will be high time for the plants to be netted. The most secure method is to use the nets double, so that the meshes may cross, otherwise the small red linnets are apt to find their way in. Cabbage seed, well ripened and harvested, and stored in a cool, dry place, will keep good for years. To pre-

vent the maggots getting among it, it is a good plan to have a little cayenne pepper with it, or a pinch or two of snuff, either of which will keep the maggots away.—S. D.

—Cabbage seed is by no means easy to secure pure where it is saved in a small way; not only does the Cabbage cross most freely with Broccoli, but also with all kinds of the Brassica family, and there be any diverse sorts growing not merely in the same garden but in any other near, the chance of securing true stocks is most doubtful. A few plants saved to bloom, and purposely blocked in together may be largely protected with fine netting. If a garden is isolated from all others, and no members of the Brassica family are permitted to bloom in that garden then the results may be all that can be desired. Where seeds of this kind are grown in a large way, and the plots of perhaps several acres are either isolated or have growing between them equally large plots of Turnips of some kind, the danger of intercrossing is minimised. Bees, the chief agents in fertilisation, will find so much food in a large field in flower, that they will not be tempted to go to another kind to get the needful load of food. Autumn-planted Cabbages for spring cutting, if of a true kind, will usually run through the summer and following winter, producing side sprouts and small heads, and then go to seed in the succeeding spring. Cabbages planted now, on the other hand, will as a rule run off to bloom next spring. Of course the heads are all cut in the interim, the shoots burst forth freely enough from the leaf joints in the spring, and these produce ample bloom. In "W. D." peculiar case, having a farm field at disposal he would do well to remove his plants there quite early in the spring, but not early in the winter, lest being transplanted, and to an exposed position, hard frost might do the stems injury. It is not an uncommon practice for autumn planted Cabbages to bolt off to flower in the spring. Seed saved from these would only perpetuate rubbish and should be pulled as fast as they are observed.—A. D.

Early Peas.—On Feb. 2 I sowed several hundred pots of different varieties, all of which were grown under the same conditions, side by side upon the same piece of ground. I gathered my first dish on May 24, from our old friend, Daniel O'Rourke; *Kentish Invicta* was ready on May 29; William I. was quite a fortnight later, and several newer kinds were nearly as late. I find the newer varieties to be larger in pod and stronger in growth, and as an early Pea I believe Laxton's First of All will turn out to be a very early variety.—G. WILLIAMS, *Peasmarsh Place, Sussex*.

Early Potatoes.—I have this season made a small, but careful trial of the Ashtop section. The following so-called varieties were planted in an open quarter, viz., Early Bird, Early Frame, Wilson's, Empress Eugénie, Early Hammsmith, Myatt's, Stratton's Seedling, and Old Ashtop (true). I find Early Frame and Empress Eugénie to be equally early; in fact I believe them to be identical. They are of the largest size, heavy croppers, and remarkably good. I therefore put these down as No. 1, Old Ashtop No. 2, and Myatt's 3rd.—R. GILBERT, *Burghley*.

Early Paris market Turnip.—I find this to be a most useful early Turnip. Sown the first week in February it was fit for use in the middle of May in a sheltered garden, and, unlike some kinds which I have grown for early crops, it showed no disposition to run to seed. We sow in rows 1½ ft. apart, and protect with old fish nets from birds, which are very partial to the seed just as it is sprouting, while under the shelter of a net the young crop makes rapid progress. We water freely if the weather is dry, and dust with wood ashes and soot while the leaves are damp. As soon as the young plants get into rough leaf they are thinned out to 6 in. apart, the hoe being kept going among them. Fresh soil is very essential for Turnips, and it should also be kept in a very friable condition.—J. G. L.

New Spinach.—At a recent meeting of the French National Horticultural Society, Messrs. Vilmorin exhibited a form of Spinach named *Monstrueuse de Viroflay*, a sort which displayed extraordinary development as compared with other kinds. This variety was obtained some seven years ago, and is declared to be perfectly fixed. Although the leaves are unusually large, they are none the less excellent in flavour.—J. C. B.

Value of deep cultivation.—This is well shown by our Onion crop that follows Celery. Two rows are just over where the Celery trench was made last summer, and three rows are over the intervening space left comparatively hard and unbroken, and although after the Celery crop was cleared all the land was dug over, the two rows over the trench are far ahead of the three on the intervening spaces, and I have noted for several years that the rows thus placed maintain their superiority to the end of the season. Therefore, if full value for labour and manure is not obtained in the case of the first crop, do not think all is lost, for it will be found that deep and thorough cultivation and manuring, even only once performed, will show its effect for years.—J. GROOM.

Peas without sticks.—The races of very dwarf Peas suitable for growing in pots or for small gardens where space is limited have of late years been greatly improved. I find that sorts which grow about 1 ft. high yield excellent crops if sown in rows on borders about 1 ft. apart. They then cover all the ground and support one another. We have now in excellent condition quite a mass of pods on Maclean's Little Gem, which, although not sown until February, was but a few days behind such tall sorts as Kingleader, Sunrise, &c., sown in December. For the future I shall rely on these very dwarf sorts for our first crop out-of-doors. They take up but little space, and the saving of Pea sticks is an important matter in many cases.—J. G.

Old or Royal Ashleaf Potato.—Have we yet any better early Potato than this, all points considered? If so, I shall be glad of information respecting it. After growing five or six Early Ashtops I find this to be the best. It was planted this season at the foot of a south wall with three other sorts all at the same time, and we found when wanted for use that the old Ashleaf was quite as large as any of them, and by far the best flavoured, being quite dry and without that close, waxy taste which the others had. Another thing is, the tops are so dwarf that it may be planted much closer together than other kinds, a great recommendation, for few people are too well off for pits or warm borders to grow early vegetables. It is to be regretted that this sort is so difficult to obtain true. Years ago it was not so, I believe; on the contrary, it was grown somewhat largely in some neighbourhoods. None of the American kinds are of much use for early growth, being poor in flavour. Size goes for nothing in kinds in which flavour is deficient.—ANON.

SHORT NOTES—KITCHEN GARDEN.

Four sorts of Peas, all sown side by side on the same day, came in as follows: William I., ten days before American Wonder or Turner's Emerald, which is doubtless one and the same Pea; Day's Early last of all, say fourteen days behind. This I have proved to be the case for two seasons in succession.—A. B.

Mushrooms, grown on Gilbert's plan, under a north wall, at Carlton House, Workshop, are coming up in quantity, large and fine, under a covering of straw and a few old shutters to throw off part of the rain. Upon this system they appear to flourish in the cold, although Mr. Jefferson adopts the moist and rather hot system indoors.—J. M.

Cucumbers at Chirk Castle.—On going through the houses at Chirk Castle the other day I met with an excellent seedling Cucumber called Huntley's Improved Telegraph. It grows from 20 in. to 25 in. in length, handsome in shape, and fine in flavour. It is also very prolific, for I counted as many as seven perfect Cucumbers at one joint, and the stems are very short-jointed. It is, too, just as prolific in autumn and winter as in summer.—J. CLARKE, *Dryknall*.

FRUIT GARDEN.

FRUIT PROSPECTS IN KENT.

As the annual sales of orchard crops are now being held, a pretty correct estimate of the crop of 1882 can be formed, and seldom in my recollection have the fair promises of spring been more disastrously blighted than this year; for although in a few favoured spots fair crops will be gathered, I feel pretty sure that the fruit crop will be termed a failure by the majority of cultivators. Amongst Apples, Keswick Codlin, Stone's Apple, Graham's Russet, and a few other kinds that never entirely fail are the only trees on which a fruit can be seen, and the worst part of the matter is the foliage is eaten up by insect pests. The best set of Apples we have is on young trees on Paradise stocks, planted in a sheltered situation. Pears with us are the best orchard crop; where the trees were not fully exposed to the gale in the end of April, they are not only carrying fair crops, but the foliage is looking well. Early market Pears, such as Sweetwater, Williams', Lammas, Green Chisel, &c., promise to finish off well. Plums are very variable; in some places they are good, but in the majority thin. Damsons, an important crop, are extremely variable; in sheltered hollows they are good, but the trees are usually planted as screens to other crops. This year frost cannot be credited with the mischief, for seldom have we had a season so free from it. Nevertheless, the fruit crop may be set down as a failure. Cherries are now ripening, and warm, dry weather is needed to help them; lately it has been extremely cold and ungenial. This crop is as variable as the rest; in one favoured spot at Farleigh it realised over £40 per acre, while the majority will be below £10. Cherries are very fickle, growers of them being dependent on the weather at gathering time as regards profits, and foreign Cherries are abundant and cheap; although poor in flavour, they keep prices down for good home-grown produce. Bush fruits form the mainstay this season. Red Currants are abundant, Black moderate, and Gooseberries variable. The prices realised at present are low, showing that in some counties there are large crops. Kent is not a favoured fruit county this year. Labour at present is not employed in gathering the produce, but in cleaning the trees and bushes, so that they may not entirely succumb to blight. Soft soap, in the form of strong soap-suds, applied with a powerful engine is the usual remedy, the stems being scrubbed with hard brushes to clear them from American blight, and working into the crevices Gishurst Compound. The Nut crop is at present good, and if heavy thunder showers clear the bushes from insects, we may get a fair yield of this valuable crop. Warmer weather would doubtless soon improve the trees and bushes in growth for another year, but the fruit crop of this season must be very much below an average.

Linton, Kent.

JAMES GROOM.

THE CROPS IN SOMERSET.

WHATEVER some may say, this cannot, I think, be called an early season. Early Potatoes are small and late; Peas were not a day earlier than in the majority of seasons; Strawberries are not so early as I have known them to be. All points, however, considered, it has certainly been a much more favourable spring than that of 1881. In particularising the different crops I may say that fruit is, with few exceptions, a light crop. There are a few Pears, and although there was some difference early in the season between the late and early ones, there is not much difference between them now; where there was a good crop, the fruit has lately fallen to a serious extent. Apples in sheltered situations are a moderate crop, but, taking the county generally, they are light. Plums are a fair average crop. The best sorts are the Purple and White Magnum Bonum, Green Gage, Coe's Golden Drop, and Jefferson's. Apricots are a full crop in most places. Strawberries partial; with us they are poor, but in some cases abundant. Figs in favourable situations are plen-

tiful. Peaches and Nectarines on open walls promised well early in the season, but the leaves are now much blistered, and insects abound. Currants and Gooseberries are plentiful, and the trees tolerably free from caterpillars. Morello Cherries are a good crop, and there are some few Walnuts.

The Rose season is most unsatisfactory. The gale in the end of April cut all the young leaves into shreds, and the growth since made is weak and unequal in strength. The Rose maggot, too, has made sad havoc, and green-fly abounds. Another remarkable feature is the Oak trees in the woods; many of them are nearly leafless, but whether through caterpillars or the storm just alluded to, I cannot say.

The Potato disease has appeared in many cottage gardens, and has already reached the tubers. The outlook in this direction is therefore not very cheering. So far as I can learn, the varieties most affected are the Asbleak Kidney and the American Early Rose; the last named is much the worst.

J. C. C.

Diseased Peaches.—*W. S. B.*—The fruits sent are suffering from a virulent attack of a fungus named *Helminthosporium rhabdiferum*. No doubt the warmth and moisture of the house are favourable to the growth of this pest. Other trees being free from disease is accounted for by the fact that this fungus is peculiar to Peach fruits in the same way as the *Peronospora* is peculiar to the Potato. The roots are also suffering from an attack of fungus. We know of no effectual remedy. The habit of the fungus is to eat into the fruit, and in this position it is difficult to be got at. The mischief is generally far advanced by the time the pest is detected.

The American Peach crop.—*Mr. E. R. Cochran*, County Clerk at Middletown, Delaware, and one of the largest Peach cultivators in the county, says that if nothing should occur hereafter to injure or destroy the crop, the quantity of Peaches will be the greatest ever produced in Delaware. Of the remarkable Peach crop of 1868, when upwards of 5,000,000 baskets were picked and shipped from Delaware, fully 750,000 baskets were grown by the Cochran families. [Means are still wanting of exporting these Peaches with success, even in the dried state, though they, growing over a more restricted area than Apples, would be more welcome in various countries.]

American Blackberries.—There is little reason to hope that our indigenous Bramble will ever be cultivated for the sake of its crop, useful and wholesome as the fruit is, but it is strange that persons having large breadths of waste land fitted only for the growth of Brambles and other undergrowth do not plant largely the fine American Blackberries, for not only is their fruit large, richly coloured, and of fine quality, but they flower earlier and the crop precedes our natural one. I have several kinds now in full bloom carrying large trusses of fine, pure white flowers, and where these are grown in big bushes or masses they must present very striking objects. The lacinated-leaved variety has foliage that should be eagerly sought after by those who have to supply household floral decorations.—*A. D.*

Fruit synonyms.—The Pear furnishes the longest list of synonyms of any kind of fruit. The White Doyenne and Pound have each over thirty names; Passe Colmar and Brown Beurré, over twenty-five; Glou Moreau, Flemish Beauty, Beurre Diel, Catillac, Vicar of Winkfield, and Summer Bon Chrétien, over twenty. These names have been picked up in the different countries and nations in which the varieties have been cultivated. But our native sorts have not travelled sufficiently round the circle, and the famed Seckel has had but four or five different names, Clapp's Favourite only one, Howell but one, Dana's Hovey but one, Tyson but one, Lawrence but one, Fulton but one, and Sheldon but three or four. These facts furnish an item in the history of fruits. Fifty years and more ago there was little pomological literature, and local names were largely adopted. Now new fruits of merit are named, described,

and widely published in books and periodicals and but one name for each is necessary.—*Country Gentleman.*

Diseased leaves on fruit trees.—I shall be obliged if any of your readers can inform me as to what is the cause of the first foliage of Peaches, Nectarines, and Plums curling and becoming much thickened, and also the stem from which they spring being similarly affected. I can only compare the disease to elephantiasis. My trees, especially the Peaches, have been attacked with it for four seasons in succession, and as a consequence I have lost good crops of fruit after they have set well. What is the best remedy to adopt? Should the thickest shoots be nipped back close? I should also like to know what becomes of the large green aphids which pair together in what is commonly termed cuckoo spittle.—*H. A. M.*

Diseased Figs.—What is the cause of the disease in the Fig which I send? Our Figs seem to go on all right until about the size of Walnuts, and then they all get rotten. They are in a south aspect, on a chalky loam, within about four miles of the south coast, at Eastbourne.—*F. R.* [There is no fungus on the Fig sent, and although you say "they go rotten," the fruit forwarded is perfectly sound. The black blots are quite superficial, and under the microscope show numerous fine cracks in the skin. Apples and Pears are affected in this way often after an attack of a fungus named *Cladosporium dentriticum*. Some say this fungus causes the cracks. These blackish spots may be the result of an attack from this fungus, but it is uncertain, although, on looking again, traces may be seen of the fungus mentioned. Scalding from sudden hot sun on rain-drops will produce similar looking stains. There are slightly discoloured places on the leaf sent, possibly resulting from the same cause whatever it may be; *Cladosporium* attacks the leaves of Apples and Pears as well as the fruits.]

SHORT NOTES.—FRUIT.

Vine borders.—Will some correspondent give the benefit of his experience as to the remaking of a Vine border in autumn, with instructions as to the mode of proceeding?—*R. H.*

Fruit crops.—The Black Bullaces are a grand crop thicker than Sloes. I have a full crop of Plums—Victoria and Orleans admirable. Pears and Apples are thin. Gooseberries, Currants, Raspberries, and Strawberries are capital crops.—*A. HARWOOD, Colchester.*

Distance between Vines.—Is not "J. S. W." p. 383 mistaken when he recommends planting Vines, 2 ft. asunder? Vigorous rods require at least a space of 18 in. in width on each side. With respect to side shoots, I venture to think he errs in the opposite extreme.—*C. MAXTED, Kearsney Abbey, Dover.*

Strawberries.—The Strawberry crop in pots with us has not been an average crop, doubtless owing to the wet, sunless autumn which we had. Vicomtesse Héricart de Thury, generally a sure cropper, has given us less fruit than any other kind. In beds all are alike good, none having apparently suffered from the wet like those confined in pots.—*C. MAXTED, Kearsney Abbey, Dover.*

Diseased Peaches (D. R.).—There is, as you suggest, a mycelium growing on the livid patches on the Peaches but this spaw is insufficient for determination. It possibly belongs to *Gloeosporium lactico* or *Helminthosporium dendroideum*, two terrible pests of Peaches—generally when ripe; yours are still green.—*F.*

The great orchards hereabout are a total failure; although the foliage of Pear and Apple trees is now fairly clean, the whole of the Plum tribe are nearly naked, showing a dead mass of wood. My Cherries and Black Currants are not at all good, but I have a heavy crop of Apples. Strawberries heavy all round here.—*J. E. W., Grange.*

Melons at Chirk Castle.—*Mr. Clarke* (p. 414) mentions having seen Melons in various stages of growth in 6-in. pots. Will he kindly say if they finish off their crop without any other soil to root in, and of what weight is the fruit? I know several growers to whom the saving of soil ordinarily considered necessary for Melons would be a great consideration. By a crop I mean about four fruits to a plant of from 3 lb. to 4 lb. each.—*J. G.*

SOCIETIES.

ROYAL BOTANIC SOCIETY.

EVENING FETE, JUNE 22.

AT the annual evening fete, held on Thursday evening last, the floral decorations were more numerous than they have been on several previous occasions, there being no fewer than sixteen competitors for dinner-table decorations. In but very few of these, however, was there any marked deviation from the orthodox style that has been in vogue for the last dozen years. We allude more particularly to the erect glass epergnes, trumpet-shaped and otherwise, which, though sometimes very gracefully embellished with flowers, have become so monotonous by the eternal repetition of them. These exhibitions are, no doubt, intended not only to display good taste in the arrangement of flowers, but also to exemplify new styles. As on the last occasion, so on this, the judges awarded the prizes to the tables that were the least conventional, and which exhibited some new departure. The best arranged table, according to the opinion of the judges, was that from Mr. Walter Wood, of Conduit Street. This consisted of low, gilded bowls, round in form and about 4 in. deep. In the middle bowl was arranged a centre plant of *Cocos Weddelliana*, small plants of the graceful variegated *Eulalia japonica*, *Caladium argyrites* and variegated *Honeysuckle*. Among these were dabbled in white *Gladioli Colvillei*, yellow *Aquilegia chrysantha*, white, sulphur yellow and deep yellow Spanish Irises, white *Marguerites*, Welsh Poppy, and Ferns, all rising from a bed of Moss. Two smaller bowls of the same pattern, placed a short distance from the centre, were filled similarly to the central one, except the addition of a few pink *Carnations* put in here and there. The bowls placed at each of the corners were similar, and eighteen small ones (too many by half), filled with tiny Palms, *Caladiums*, Ferns, were placed at intervals along the sides. The principal points of this arrangement were the simplicity of style and general harmony of tone of colour which ran through the whole of the materials used. The second table, furnished by Messrs. Phillips, Oxford Street, consisted of white china bowls raised about 1 ft. high on statuettes, thus giving a free scope for arranging the flowers in an easy and simple manner. The material was somewhat similar to that employed for the first prize table, except the addition of red Poppies and scarlet *Martagon Lilies*, which, however, should be excluded from such service on account of their ungrateful odour. The third prize was taken

by Mr. Fennell, Fairlawn, Tonbridge, who had a pretty arrangement, the centre-piece consisting of (variegated *Eulalia*, silvery leaved *Caladium*, golden *Selaginella*, and *Roses* being particularly remarkable, as were also the lightly arranged small vases. Extra prizes for tables were taken by Mrs. Seale, Vine Nursery, Seven-oaks, and Mr. Chard, Clapham Common; in the arrangement by the latter exhibitor were some pretty combinations of *Rhodanthes*, Quaking Grass, and white *Gladioli*. Among other noteworthy arrangements among the tables were yellow Sweet Sultan, *Eulalia* variegata, and *Caladium argyrites*; also dark purple English Irises, yellow Flags, and yellow Columbine with greenery.

There were five arches of cut flowers and foliage arranged for a sideboard, but none of them were very remarkable. That from Miss Gardiner, Park House, St. John's Wood, which took the first prize, consisted chiefly of Spanish Irises, mostly the bronzy kinds, *Lilium giganteum*, and Grasses. Mr. Buster, St. Mary's Cray, Kent, was second; and Mrs. Sperling, Regent's Park, third. There were nineteen epergnes of flowers, some very pretty. The first prize was taken by Mr. Wood, who had a counterpane of his centre-piece in his dinner table arrangement. Mr. Buster was second with a pretty stand, the upper part lightly arranged with Grasses and flowers, the lower *Begonia* leaves and crimson *Gladioli* and Water Lilies. Mr. Prewitt, Swiss Nursery, Hammersmith, was third; while Mrs. Guimavaens, Caterham Valley, took an extra prize for a pretty arrangement. Twenty-six baskets of flowers were shown, which exemplified all styles. The judges selected the simplest arrangements for their awards. The first was taken by Mrs. Vincent, Cavendish Square, with a simple basket of Pansies, lightly associated with Maiden-hair Fern and *Selaginella*. Mrs. Guimavaens was second with a pretty basket full of Oak leaves, single *Roses*, Grasses, and Ferns. A basket of Tea Rose-buds with Ferns from Mrs. Seale took the third prize. Elaborate baskets of Orchids and other choice flowers were passed over by the judges.

There were about a dozen bridal bouquets, the best being shown by Messrs. Henry & Co., Victoria Street, the next by Mr. G. Wood, the third by Mr. Prewitt. The best ball-room bouquet consisted chiefly of *Carnations*, the second by Mr. Brown, the third by Mr. J. Wood, Haverstock Hill. Ten were shown.

The best standing basket for a room was one of foliage entirely—Ferns, *Caladiums*, and Palms

shown by Messrs. Henry & Co.; the second best came from Mr. Parnley.

The best outdoor basket was shown by Messrs. Henry & Co., but only a second prize was awarded; the third was taken by Mr. Parnley, Albert Gate. Of the half-dozen baskets shown, a fine large basket of a Fern (*Nephrolepis*), shown by Miss A. Williams, Sutton House, Holloway, took the first prize; Mr. G. Wheeler showed a drooping *Fuchsia* for the second; Messrs. Dick Radclyffe were third.

Messrs. Cutbush, Highgate Nurseries, were the only exhibitors of arrangements for an alcove and a ball-room, both of which contained a great variety of well-grown plants. The mounds in the centre of the tent were covered with a fine collection of *Roses* in pots from Messrs. Paul & Son, Cheshunt, which formed the chief attraction. A pretty group of Filmy Ferns and Orchids from the Pine-apple Nursery, Maida Vale, among others added much interest to the exhibition.

Oxford show.—The prizes for vegetables offered at this show by Messrs. Webb & Sons, Wordley, produced the other day a vigorous competition; the exhibits, which were extremely good, consisted of Early Mammoth Cauliflower, Perpetual Bearer Cucumber, new Kinver Gem Pea, Victoria Dwarf Bean, improved Ashleaf Potato, &c. The first prize (£3 3s.) was awarded to Mr. S. P. Brookes, North House, Tewkesbury; second (£2 2s.), Sir W. Throckmorton, Buckland Park, Faringdon; third (£1 1s.), Mr. W. M. Foster-Melliar, North Aston Hall, Deddington; fourth (10s. 6d.), Mr. Geo. Kirtland, Bletchington.

The Midland Railway is about to commence the cultivation on the waste grounds along its embankments of fruit trees and Potatoes.

Mr. J. C. BOSTON, late of Messrs. Carters', has been appointed resident manager at the Pine-apple Nurseries of Messrs. E. G. Henderson.

THE annual dinner given by the proprietor of the Exeter Nursery (Dr. Woodman) to his employees took place on Saturday last at the Plymouth Inn, Exeter, when the company, numbering between forty and fifty, spent the evening in a convivial manner.

Names of plants.—*J. C. L.*—1, *Dianthus deltoideus*; 2, white variety of *Calamintha sylvatica*.—*T. B. Watson*.—1, *Sidalcea malvaeflora*; 2, *Geum montanum*; 3, species of *Erysimum*; 4, *Styliphorum diphyllum*.—*T. E. F.*—We cannot undertake to name varieties of *Azalea indica*.—*Mac*.—*Ranunculus repens* fl. pl.; the other is apparently *Lycinus flo-cuculi*.—*F. F. D.*—1, a species of *Sonchitis*; 2, *Sedum carneum variegatum*; 3, *Tradescantia repens*; 4, *Hibiscus rosa sinensis variegata*.



